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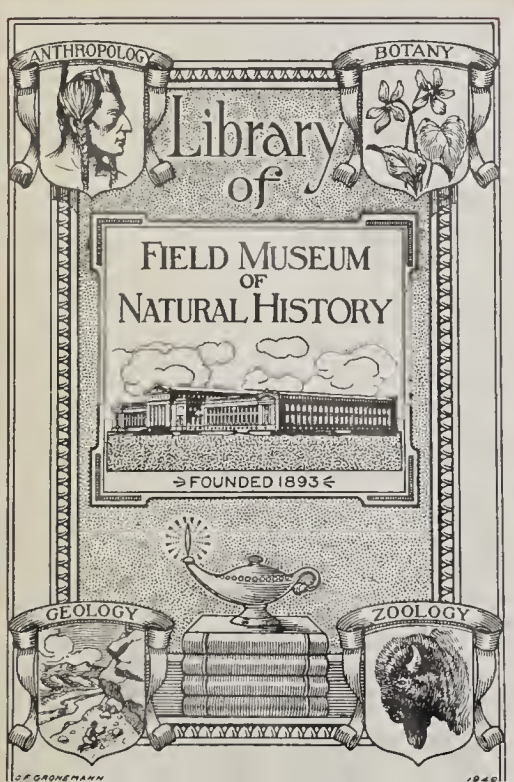

ZOOGRAPHY;

OR, THE

Beauties of Nature Displayed.

ZOOGRAPHY;

OR, THE

Beauties of Nature Displayed.

IN

SELECT DESCRIPTIONS

FROM

THE ANIMAL, AND VEGETABLE,

WITH ADDITIONS FROM

THE MINERAL KINGDOM.

SYSTEMATICALLY ARRANGED.

BY W. WOOD, F. L. S.

ILLUSTRATED WITH PLATES, DESIGNED AND ENGRAVED
BY MR. WILLIAM DANIELL.

IN THREE VOLUMES.

VOL. I.

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1807.

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TO

THE QUEEN (Charlotte)

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IS

BY HER MAJESTY'S GRACIOUS PERMISSION

MOST HUMBLY INSCRIBED

BY

HER VERY DEVOTED AND OBLIGED SERVANT

THE AUTHOR.

LONDON,
NOVEMBER 1807.

PREFACE.

"WERE a savage of America possessed of a watch, and had by frequent observations on the movements attained to the thorough knowledge of the action of the wheels, the disposition and correspondence of the several parts of it, without knowing the division of time, or any use of his watch, he would in reality be more ignorant with regard to all the intents and purposes of this machine, than a European who knows how to inform himself by it of the time and hour of the day, without having made any observations on its mechanism and structure. Just so it is with him who has spent his life in the study of natural history, and taken no pains to acquaint himself with the ends

and designs of Providence in the œconomy of the world. This philosopher, notwithstanding all his study and learning, is more devoid of true useful knowledge than the illiterate upright man, who, without having made any curious researches into the laws of motion, or the particular structure and frame of the universal system, sees enough to lead him to pay his constant adorations and thanks to that great and good Being, who created and sustains this wonderful machine for his use, and continues to shower down daily his gifts and blessings on mankind. We may then collect and treasure up rarities from the four quarters of the world, cast up the number of the stars, calculate the motions of the planets, and venture to foretel the return of the comets; we may be able to dissect insects with all imaginable art, and anatomize the elements themselves, and even trace Nature through all its curious phænomena, and yet remain profoundly ignorant. The whole system of Nature may very aptly be compared to a

large watch, the springs and movements of which are employed to teach us something more than is visibly represented by them; and therefore the naturalist who spends his whole time in barely observing the play and action of these movements, without carrying his inquiries further, is no better than an American savage; he labours to find out what is not necessary for him to know, and perhaps impossible for him to comprehend, and neglects the only main point, which is to know what the watch is good for."

How many persons daily verify these observations of the excellent Abbé La Pluche! How many examine the different objects of the three natural kingdoms, not as if they were created for any good or particular purpose; not as if a designing Providence had any share in their formation; but as matters of idle curiosity, that are to be seen to-day, and forgotten to-morrow. Nature has no charms to arrest the attention of these persons beyond the moment; they feel no inclination to be better acquainted with her;

and leave her productions with the greatest indifference when once they have gratified their sight. Many, on the contrary, anxiously collect every specimen throughout the wide field of Nature, that will either decorate their museum or increase their cabinet; they arrange them with the most studious care, class them with the greatest correctness, and are never satisfied with looking at their treasures: but they go no further. The animal is admired for its singularity, the bird for its beautiful plumage, the shell for its varied tints, the plant because it came from some one of our distant colonies, and the mineral for its glittering surface; while the instructive history which is attached to all these different objects, and which would tend to lead us by gentle and pleasing steps to the knowledge of an all-powerful Being, is totally neglected. To use the words of the celebrated Derham, "The Creator did not bestow so much curiosity and workmanship on his creatures, to be looked on with a careless incautious eye,

especially to have them slighted or contemned ; but to be admired by the rational part of the world, to magnify his own power to all the world and the ages thereof: and since the works of the creation are all of them so many demonstrations of the infinite wisdom and power of God, they may serve to us as so many arguments exciting us to a constant fear of the Deity, and a steady and hearty obedience to all his laws."

Considered in this light, how much may be gained by the study of Nature when properly directed! The wonders which it unfolds will be constantly raising our veneration towards God, while the various uses to be derived from it will be of the utmost service to man. The magnetic needle which directs the mariner in his course, and without which he would be reduced to a state of the most dreadful uncertainty, is one instance among many of the great use of minerals.

In the vegetable kingdom innumerable instances occur to prove the value of a pro-

per knowledge of its inhabitants. We are surrounded on every side by plants of different descriptions, and of different virtues; scarcely any of the inhabitable part of the world is left without its verdant carpet, and few situations occur that do not afford plants of a higher order than grasses. From this extensive kingdom, so essentially necessary to the support of animated nature, by far the greater part of the materia medica is derived, and daily improvements are still made in the practice of physic by discovering the virtues of plants. Among this vast and salutary multitude there are but few, comparatively, of a poisonous nature, and even some of these in the hands of the skilful physician are made subservient to the best of purposes.

If we ascend to a higher class of beings, and contemplate the extensive range of the animal creation, we shall there find a host of objects which cannot fail to attract our attention. If we examine this multitude collectively, we shall perceive that the whole

is conducted in the wisest manner for the welfare of each individual, and that all is harmony, from the ourang-outang, (whose striking resemblance both in outward appearance and inward conformation has ranked him, with naturalists, above the other inhabitants of the forest,) down to the tender polype, which forms the connecting link between the animal and the vegetable kingdom. Among the quadrupeds we meet with instances of sagacity, of faithfulness, of docility, and many other good qualities, from which mankind derive innumerable benefits. In birds we may observe a wonderful instinctive faculty guiding them in the formation of their nests, in the rearing of their young, and in their periodical migrations from one part of the world to another. If we continue to descend, we shall still find the animal inhabitants of the earth busied in those respective, though humble, occupations to which it has pleased the Creator to appoint them; and from the lives of many may be drawn lessons of industry, patience,

and perseverance, which some of us would do well to study. In short, the great book of Nature will always afford us both amusement and instruction, if we will but take the trouble to peruse it. Some of the subjects indeed will be less interesting than others; some will seem to be insignificant; and millions will be found in the waters that elude our search without the assistance of a microscope: yet all these, however trifling they may appear, were most assuredly created for some good purpose, and to answer some particular end.

With respect to the Work which we have now ventured to lay before the public, it consists of a selection of those objects in natural history which appeared to us best calculated to excite the attention of those who have any relish for this rational pursuit, and most likely to afford amusement to the many who care but little about the study.

We have not scrupled to adorn our bird with borrowed plumes, and will ingenuously

confess, that wherever we have met with materials to our mind we have freely made use of them. This, however, has not been done without acknowledgment, as the names of the different authors, from whom we have derived information, are for the most part mentioned throughout the work. It will be but just in this place to confess our obligations to the engaging *Spectacle de la Nature*, since we have taken from that book whatever has suited our purpose. From the excellent mineralogical works of Patrin * and Brongniart † we have also received great assistance, which we the more readily mention here, as we have not always noticed their names when we have quoted their books. "I am very sensible," says Rollin, "that it is not so much for a person's reputation to make use of other men's labours, and that it is in a manner renouncing the name and quality of author.

* *Histoire Naturelle des Mineraux, Paris* 1803.

† *Traité Elementaire de Mineralogie, Paris* 1807.

But I am not over fond of that title; and shall be extremely well pleased, and think myself very happy, if I can but deserve the name of a good compiler, and supply my readers with a tolerable history, who will not be over solicitous to inquire what hand it comes from, provided they are but pleased with it." If so celebrated and excellent a writer as Rollin could preface his Antient History with this candid confession, it would surely be great presumption in us to consider our humble undertaking as worthy a better title.

We have endeavoured to render our descriptions familiar to every one, and occasionally to enliven them with anecdotes illustrative of the manners and habits of the different animals. We are well aware that among these there are some which either from their want of importance, or from having been repeated before, we might have dispensed with; but it was difficult to draw the line, especially as we rather pro-

fess to lead others to study this captivating science, than to teach those who are already acquainted with its beauties.

The systematic arrangement we have pursued, in conformity with the present enlightened state of the science, will be found of considerable service to those who take up the book with a view to profit by the study, as we have been careful to give, to all the leading subjects, a concise Linnæan specification, accompanied by references to several authors of acknowledged reputation and value. In our arrangement of the quadrupeds, we have adopted the celebrated Ray's method, in preference to that of Linnæus. Had our work been calculated merely to satisfy the rigid naturalist, this would hardly have been excused ; but as it is, we may perhaps be pardoned for the repugnance we feel to place the monkey at the head of the brute creation, and thus to associate him, as it were, with man.

We conceive it unnecessary to say much respecting the embellishments which ac-

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ZOOGRAPHY;

OR THE

Beauties of Nature displayed.

HOOFED QUADRUPEDS.

HORSE.

GENERIC CHARACTER.

Hoof consisting of one piece.
Six cutting teeth in each jaw.

SPECIFIC CHARACTER.

EQUUS CABALLUS. E. pedibus solidungulis, cauda undique setosa. *Linn. Syst. Nat. Gm.* 1. p. 209. Hoofs solid, tail entirely covered with long hairs.
Equus auriculis brevibus erectis, juba longa. *Briss. Regn. An.* p. 100. n. 1.

COMMON HORSE. *Sm. Buff.* v. 3. p. 307. pl. 11. *Penn. Hist. Quadr.* v. 1. p. 1. *Penn. Br. Zool.* v. 1. pl. 1. *Bew. Quadr.* p. 1. *Shaw Gen. Zool.* 2. pl. 214.

THE horse is endowed with so many noble and engaging qualities, that he seems better to deserve the title of king of beasts than the lion, upon whom that dignity has so long been conferred. The lion only exerts his strength to the prejudice of other

animals; he never raises his paw but for the purpose of destruction, and seldom sleeps unstained with blood. On the contrary, the horse is never injurious to other creatures; he discovers nothing that can expose him to the least aversion; he possesses no bad quality, and enjoys all those that are amiable. Of all animals, he has the finest turn of shape, is the most noble in his inclinations, and the most liberal of his services.

Arabia, of all countries in the world, produces the most beautiful wild horses; and the Arabs, beyond all others, are the most sensible of their value. Almost every Arabian is provided with his horse; and as they chiefly live in tents, the animal becomes truly one of the family: the mare, the foal, the husband, the wife, and the children, lie all together indiscriminately, the little children often sleeping upon the neck or body of the mare without the least apprehension of danger. The kind and familiar manner in which they are treated by the family, the soothing language, and the many little acts of kindness they receive from their masters, together with that constant intercourse which exists between them, create a tractability in the Arabian horses which is not equalled in those of other countries. Spurs are quite unnecessary; the least touch with the stirrup is sufficient to make these airy coursers bound across the plain with a swiftness that nothing can surpass. The ostrich, whose amazing speed enables it to escape from other animals, cannot elude the fleetness of the Arabian horse; but, after having

in vain attempted to outrun him, the poor and jaded animal, finding all its efforts to escape hopeless, hides its head wherever it can, and tamely suffers itself to be taken. The Arabian will sometimes mount his horse without either bridle or saddle; and such is the animal's compliance to the rider's will, that the mere motion of a switch is sufficient to direct him in his course. Mr. Pennant, in his British Zoology, has given a proof of the estimation in which this creature is held, in the lamentation of an Arab who was obliged through poverty to part with his mare; and M. Saint Pierre, in his Studies of Nature, has given the following instance of the very great attachment which the Arabians have for their horses:

" The whole stock of a poor Arabian of the desert consisted of a beautiful mare; this the French consul at Said offered to purchase, with an intention to send her to Louis the Fourteenth. The Arab, pressed by want, hesitated a long time, but at length consented, on condition of receiving a very considerable sum of money which he named. The consul wrote to France for permission to close the bargain, and having obtained it, sent the information immediately to the Arab. The man, so poor as to possess only a miserable rag, a covering for his body, arrived with his magnificent courser: he dismounted, and looking first at the gold, and then steadfastly at his mare, heaved a sigh. ' And to whom is it,' he exclaimed, ' that I am going to yield thee up? To Europeans! who will tie thee close,

who will beat thee, who will render thee miserable! Return with me, my beauty! and rejoice the hearts of my children.' As he pronounced the last words, he sprang upon her back, and was out of sight almost in a moment."

Experience has taught the Arabians that mares are more serviceable to them than horses. They endure fatigue, thirst, and hunger better than horses: they are of a more harmless and gentle nature; and are so little inclined to hurt each other, that they may be left together for several days without doing any mischief.

The noble deportment of this beautiful creature cannot fail to make an impression even on those who are least acquainted with his virtues. He is still more engaging in his inclination; and indeed can properly be said to have but one, which is to render service to his master. He seems sensible of the honour of his caresses, studies how to please him, and at the least signal varies his pace; is always ready to slacken, redouble, or precipitate it, when he is acquainted with his rider's will. Neither the length of a journey, nor ditches, nor rivers the most rapid, can discourage him; he springs through every obstacle as a bird whose career no impediment can check.

At the same time that we bestow a panegyric on the animal whose superior breed places him in the first rank among his species, the tribute of praise should not be withheld from those of an inferior cast, who, destined all their lives to bear the heavy

burthens we impose upon them, show a degree of patience and perseverance that cannot be too much admired. An intelligent writer informs us, that when pack-horses were used, they strictly adhered to the line of order and regularity which custom had taught them to observe, when they journeyed over trackless moors to carry the different manufactures and articles of traffic from one part of the kingdom to another. The leading horse, which was always chosen for his sagacity and steadiness, being furnished with bells, gave notice to the rest, who followed the sound, and generally without much deviation, though sometimes at a considerable distance. The following instance will show with what obstinate perseverance they have been known to observe the line of their order. Some years ago, one of these horses which had been long accustomed to follow next to his leader, by accident or fatigue was thrown into an inferior rank: the poor animal, as if sensible of his disgrace, by the most strenuous exertions at length recovered his usual station, which he maintained during the remainder of his journey; but on his arrival in the inn-yard he dropped down and died upon the spot, his life falling a sacrifice to his ambition.

ASS.

SPECIFIC CHARACTER.

Equus Asinus.	E. pedibus solidungulis, cauda extremitate setosa, cruce nigra (mari) supra humeros.
	Hoofs solid, the end of the tail furnished with long hairs, a black cross on the shoulders of the male.
	Equus auriculis longis flaccidis, juba brevi. *Briss. Quadr.* 70.
Ass. . . .	*Sm. Buff.* v. 3. p. 398. pl. 12. *Penn. Hist. Quadr.* v. 1. p. 8. *Bew. Quadr.* p. 17. *Shaw Gen. Zool.* 2. pl. 216.

PASSAGE OF THE ANDES.

These stupendous mountains, running almost the whole length of South America, may literally be said to hide their heads in the clouds: the storms often roll, and the thunders burst, beneath their summits; which, though exposed to the rays of the sun, in the very centre of the torrid zone, are covered with everlasting snows. The manner in which the asses descend the precipices of these Alps is truly astonishing. In the passes of the mountains there are often on one side steep eminences, and on the other frightful abysses; and as these generally follow the direction of the mountain, the road, in-

stead of lying on a level, forms at every little distance steep declivities of several hundred yards downwards. These can be descended only by asses or mules; and the animals themselves seem sensible of the danger, by the caution they use. When they come to the edge of one of the descents, they stop of themselves, without being checked by the rider; and, if he inadvertently attempts to spur them on, they continue immovable. They seem all this time ruminating on the danger which lies before them, and preparing themselves for the encounter. They not only attentively view the road, but tremble and snort at the danger. Having prepared for the descent, they place their fore-feet in a posture as if they were stopping themselves; they then also put their hinder feet together, but a little forward as if they were about to lie down. In this attitude, having taken a survey of the road, they slide down with the swiftness of a meteor. In the mean time all that the rider has to do is to keep himself fast on the saddle, without checking the rein; for the least motion is sufficient to disorder the equilibrium of the ass; in which case both must unavoidably perish. But their address in this rapid descent is truly wonderful; for, in their swiftest motion, when they seem to have lost all government of themselves, they follow exactly the different windings of the road, as if they had previously settled in their minds the route they were to follow, and taken every precaution for their safety. In this journey, the natives, who are placed

along the sides of the mountains, and secure themselves by the roots of the trees, animate the beasts with shouts, and encourage them to perseverance. Some asses, after being long used to these journeys, acquire a kind of reputation for their safety and skill; and their value rises in proportion to their fame.

The ass was originally imported into America by the Spaniards; and that country seems to have been so favourable to this race of animals, that where they have run wild they have multiplied in amazing numbers, and become quite a nuisance. In the kingdom of Quito, says Ulloa, the owners of the grounds where they are bred, suffer all persons to take away as many as they can, on paying a small acknowledgment, in proportion to the number of days their sport lasts. They catch them in the following manner: a number of persons go on horseback, and are attended by Indians on foot: when arrived at the proper places, they form a circle in order to drive them into some valley; where, at full speed, they throw the noose, and endeavour to halter them. Those creatures, finding themselves inclosed, make very furious efforts to escape; and if only one forces his way through, they all follow with an irresistible impetuosity. However, when noosed, the hunters throw them down, and secure them with fetters; and thus leave them till the chase is over. Then, in order to bring them away with greater facility, they pair them with tame

beasts of the same kind: but this is not easily performed; for they are so remarkably fierce that they often hurt the persons who undertake to manage them. It is this superior breed that the inhabitants of Quito use in their passage across the mountains. They have all the swiftness of horses, and neither acclivities nor precipices retard them in their career; they are very spirited, and when attacked defend themselves with their mouth, with such activity that, without slackening their pace, they often maim their pursuers: but the most remarkable property in these creatures is, that after carrying the first load, their celerity leaves them; their dangerous ferocity is lost, and they soon contract the stupid look and dullness peculiar to the asinine species. It is also observable that these creatures will not permit a horse to live among them; they always graze together; and if a horse happens to stray into the places where they feed, they all fall upon him, and bite and kick him till they leave him dead on the spot. They are very troublesome neighbours, making a most horrid noise: for, whenever one or two of them begins to bray, they are answered in the same vociferous manner by all within the reach of the sound, which is greatly increased and prolonged by the repercussions of the valleys and breaches of the mountains.

The asses in the principal streets of Cairo stand ready to be hired; they are properly bridled and saddled, and attended by the person who lets them. This man runs behind, to goad on his ass and cry

out to those on foot to make way. They are regularly fed, rubbed down, and washed; which so greatly improves them that they grow to a large size, and are occasionally sold at a very high price. In this country, on the contrary, this useful animal is much neglected and abused. We educate the horse with the greatest care; nothing is spared to render him beautiful; he is dressed, attended, instructed, and exercised; while the poor ass is abandoned to the brutality of the meanest servants, or to the malicious abuse of children. If he had not a great many good qualities, he would never be able to bear the hard usage he daily meets with, and which certainly makes him more stupid and indocile than he otherwise would be. He is in the power of every rustic, and is frequently beaten without a cause, and loaded without mercy. We do not consider, that if the horse had no existence, the ass, both in himself, and with regard to us, would be the first and most distinguished animal in the creation. It is comparison alone that degrades him.

The ass is temperate both as to the quantity and quality of his food. He eats contentedly the hardest and most disagreeable herbage, which the horse and other animals pass by and disdain. He is particularly nice with regard to water, and only drinks from the clearest brooks he can find. In drinking he is equally moderate as in eating. He never sinks his nose in the water, being afraid, as has been alleged, of the shadow of his ears. As no person ever takes the trouble to comb him, he often

rolls on the grass among thistles or fern; and he frequently takes this liberty without paying any regard to the load he carries, seemingly with a view to reproach the neglect of his master; for he never wallows, like the horse, in the mire, or in the water. He is even afraid to wet his feet, and turns off the road to avoid a puddle.

The wild ass, or onager of the antients, is much higher than the tame ass, which it resembles in the narrowness of its chest and body. The head is carried with more spirit, and the skull is said to be surprisingly thin. This species, according to Mr. Pennant, inhabits the dry and mountainous parts of the deserts of Great Tartary. They are migratory, and arrive in vast troops, to feed during the summer, in the tracts east and north of Lake Aral. About autumn, they collect in herds of hundreds, and even thousands, and direct their course towards the north of India, to enjoy a warm retreat during winter. But it appears that Persia is their most usual place of retirement, where some of them are found in the mountains of Casbin at all times of the year.

The Arabians take them in snares for the sake of their flesh, which, although hot and unsavoury when fresh killed, becomes very good meat, if not eaten till a day or two after it has been boiled. The Romans were likewise fond of them; and Pliny tells us that the epicures preferred those of Africa to all others.

OX.

GENERIC CHARACTER.

Horns concave, bending out laterally.
Eight cutting teeth in the lower jaw, none in the upper.
Skin along the lower side of the neck pendulous.

SPECIFIC CHARACTER.

Bos Taurus. B. cornibus teretibus extrorsum curvatis, palearibus laxis. *Linn. Syst. Nat. Gmel.* 1. p. 202.
Horns round and curved outwards; pendent dewlap.
Bos cornibus crassis brevibus sursum reflexis, fronte crispa. *Briss. Regn. An.* p. 80. n. 3.
Ox. . . . *Penn. Hist. Quadr.* v. 1. p. 16. pl. 2—5. *Bew. Quadr.* p. 34. *Penn. Brit. Zool.* 1. p. 18. *Shaw Gen. Zool.* 2. pl. 208.

Oxen are still found wild in some parts of Europe; and although the original stock has long since been extinct in our island, yet their offspring are still preserved in the parks of Drumlanrig and Chillingham. They retain their white colour, and their savage disposition, but have lost their manes. The late Mr. Tunstall, of Wycliff, Yorkshire, collected some curious information respecting these cattle,

which he published in Bewick's History of Quadrupeds; to which book we are principally indebted for the following account:

Numerous herds of a very singular species of wild cattle were formerly kept in several parks in England and Scotland; but they have been destroyed by various means; and the only breeds now remaining in the kingdom are in the park at Chillingham-castle, in Northumberland; at Wollaton, in Nottinghamshire, the seat of lord Middleton; at Gisburne, in Craven, Yorkshire; at Lime-hall, in Cheshire; and at Cartley, in Staffordshire.

The principal external appearances which distinguish this breed of cattle from all others are the following: their colour is invariably white; muzzles black; the whole of the inside of the ear, and about one-third of the outside, from the tip downwards, red; horns white, with black tips, very fine, and bent upwards. Some years ago, there were a few at Chillingham with black ears, but they have been all destroyed by the present park-keeper. Some of the bulls have a thin upright mane, about an inch and a half or two inches long.

At the first appearance of any person, they set off in full gallop; and at the distance of two or three hundred yards make a wheel round, and come boldly up again, tossing their heads in a menacing manner: on a sudden they make a full stop, at the distance of forty or fifty yards, looking wildly at the object of their surprise; but, upon the least motion being made, they all again turn round, and fly

off with equal speed, but not to the same distance; forming a shorter circle; and again returning with a bolder and more threatening aspect than before, they approach much nearer, probably within thirty yards; when they make another stand, and again fly off. This they do several times, shortening their distance, and advancing nearer, till they come within ten yards; when most people think it prudent to leave them, not choosing to provoke them further; for there is little doubt but in two or three turns they would make an attack.

The mode of killing them was, perhaps, the only modern remains of the grandeur of antient hunting. On notice being given that a wild bull would be killed on a certain day, the inhabitants of the neighbourhood came mounted, and armed with guns, &c. sometimes to the number of a hundred horse, and four or five hundred foot, who stood upon the walls, or climbed into trees, while the horsemen rode off the bull from the rest of the herd, until he stood at bay; when a marksman dismounted and shot. At some of these huntings, twenty or thirty shots have been fired before he was subdued. On such occasions, the bleeding victim grew desperately furious, from the smarting of his wounds, and the shouts of savage joy that were echoing from every side: but from the number of accidents that happened, this dangerous mode has been little practised of late years; the park-keeper alone generally shooting them with a rifle gun at one shot.

When the cows calve, they hide their offspring for

a week or ten days in some sequestered situation, and go and suckle them two or three times a-day. If any person come near the calves, they clap their heads close to the ground, and lie like a hare in form, to hide themselves. This is a proof of their native wildness, and is corroborated by the following circumstance that happened to the writer of this narrative, who found a hidden calf, two days old, very lean and very weak. On stroking its head, it got up, pawed two or three times like an old bull, bellowed very loud, stepped back a few steps, and bolted at his legs with all its force; it then began to paw again, bellowed, stepped back, and bolted as before; but he knowing its intention, and stepping aside, it missed him, fell, and was so very weak that it could not rise, though it made several efforts: but it had done enough: the whole herd were alarmed, and, coming to its rescue, obliged him to retire; for the dams will allow no person to touch their calves without attacking them with impetuous ferocity.

When any one happens to be wounded, or is grown weak and feeble through age or sickness, the rest of the herd set upon it, and gore it to death. Mr. Tunstall concludes his remarks by adding, that the weight of the oxen is generally from forty to fifty stone the four quarters; that of the cows about thirty. The beef is finely marbled, and of excellent flavour.

Our savage cattle have been frequently mentioned by historians. It is related, that Robert

Bruce, during the chase of these animals, was preserved from the rage of a wild bull by the intrepidity of one of his courtiers; from which he and his lineage acquired the name of Turn-bull. The varieties of domestic cattle sprung from the wild stock are very numerous: among them is the great Indian ox, esteemed for the vast lump on his shoulders, which is reckoned most delicious food. There is likewise in India a very small sort, with a lump on the shoulders like the former; but this animal is not much bigger than a large dog, and is used in the East to draw children. Two of these little bulls were brought from India to this country, and are now* in Exeter Change.

Of the European cattle the most famous are those of Holstein and Jutland. They grow to a large size, in consequence of their pasturage, which is very rich. The English breed is derived from the foreign; and by cultivation, those in many parts of England will now rival the best cattle that can be produced from the continent.

We are beyond measure indebted to our cattle for the many benefits we receive from them. The flesh of these animals is so nourishing and perfect that we leave the most exquisite delicacies to return to it, and are never satiated with the repasts it affords us. We feed them with a few herbs, or allow them the liberty to range in the fields, and supply themselves with those productions

* May 1806.

that are least beneficial to us; and they return every evening to repay this obligation with a liberal flow of milk. The night is no sooner passed, but they earn by a second payment the sustenance of the succeeding day. There is scarce any part of their bodies without its use; the hide, when properly prepared, serves for boots, shoes, and numberless other purposes. Vellum is made of calves' skin. Of their horns we make combs, boxes, handles for knives, and drinking-vessels; and when softened in water, they serve the purpose of glass for the sides of our lanterns. Even medicine was formerly indebted to this part of them for an antidote against poison, under the title of the English bezoar, and they were found to be full as *efficacious* as the *Oriental kind.* The large bones are used by mechanics in the place of ivory; and from the smaller ones an oil is produced, much used by many in cleaning harness, and all the trappings belonging to a coach. The blood is an excellent manure for fruit-trees, and is the basis of that fine colour the Prussian blue. In short, the blood, fat, marrow, hide, hair, horns, hoof, milk, cream, butter, cheese, whey, liver, gall, spleen, and bones, have each their particular use in manufactures, commerce, and medicine.

If the value of these presents is any way diminished, it is because we daily receive them, and think no more of them; they are depreciated by the easiness of obtaining them: but, in reality, this is a circumstance which enhances their merit. A

liberality which knows no interruption, and is daily repeated, is ever worthy of new returns of gratitude; and the least we can do when we receive a benefit, is to vouchsafe an acknowledgment to the donor.

The belief in a transmigration of souls is so strongly impressed on the mind of the simple Gentoo, that he would not on any account destroy a bull or a cow, lest he should at the same time injure one of his fellow-creatures. This is alleged by Grose as a cause for their forbearance; yet it seems principally to proceed from their gratitude to these animals, for providing them with their four greatest luxuries; their milk, their cream, their butter, and their cheese.

BUFFALO.

Designed by W. Daniell.

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BUFFALO.

SPECIFIC CHARACTER.

Bos Bubalus. B. cornibus resupinatis intortis, antice planis. *Syst. Nat. Linn. ed. Gmel.* 1. p. 206.
Horns straight to a great length from the base, then bending upwards; flat on the forepart.
Bos indicus. *Plin. Hist. Nat.* viii. c. 45.
Buffle. *Kolbe. Desc. du Cap de Bonne Esp.* t. 3. p. 25. pl. at p. 54. fig. 3.
Buffalo. . . *Sm. Buff.* v. 6. p. 150. pl. 170. *Penn. Hist. Quadr.* ed. 3. v. 1. p. 28. *Bew. Quadr.* p. 43. *Shaw Gen. Zool.* 1. p. 401.

Buffaloes are natives of the southern regions of Asia and Africa, and in size give place only to the elephant, the rhinoceros, and the hippopotamus. The Cape variety of this animal (*Bos Caffer* Linn.) is a very strong and fierce creature. His frame is remarkably muscular; and although not taller than a common-sized ox, the African buffalo is at least twice his bulk. The horns at the base are each twelve or thirteen inches broad, and are separated only by a narrow channel, which fills up with age, and gives to the animal a forehead completely covered with a rugged mass of horn as hard as rock. From the base they diverge downwards, and are in-

curved towards the points, which are generally distant from each other about three feet. Mr. Barrow informs us, that the fibres of its muscles are like so many bundles of cords; and they are covered with a hide little inferior in strength and thickness to that of the rhinoceros.

The peasantry prefer this hide to the skin of all other animals for cutting into thongs, to be used as traces and harness for their carts and waggons. The flesh is too coarse-grained to be good; yet the farmers generally salt it as food for their Hottentots. A singular circumstance is mentioned by Mr. Barrow respecting this kind of buffalo. He says that the teeth are always so perfectly loose in their sockets as to rattle and shake in the head.

Buffaloes are domesticated in India and in Italy, but it seems that no attempts have been made by the Dutch to render them useful in Africa. "Any other nation," says Barrow, "possessing the Cape for one hundred and fifty years, would certainly have effected it." Though the buffalo and the ox are very similar, and, where domesticated, not only live under the same roof, and enjoy the same liberty, but feed in the same pastures; yet we are assured they will never intermix; that cows will refuse to suckle young buffaloes, and that female buffaloes will refuse to suckle calves. A mutual antipathy seems to have been planted in them by nature. The habits of this animal are gross and brutal, and he is said to be the dirtiest of all creatures except the hog. Fond of wallowing in the mud, the buffalo

seldom passes an opportunity of indulging himself; and even in India, where he is domesticated, the drivers are in continual fear, when he crosses a river, that he will lie down with his load.

The violent and impetuous disposition of the buffalo is such, that the inhabitants are exceedingly afraid of him, and, unless numerous, seldom dare to attack him openly: he is no sooner wounded, than he becomes the most furious and formidable animal that can be imagined; nothing stops his career till he overtakes the object of his revenge; when, not content with the death of the unfortunate person, he will return to the slaughtered body, stand over it for a time, trample on it, crush it with his knees, and deliberately mangle the remains with his horns and teeth. This sort of insult the buffalo will repeat at certain intervals, till the corpse is completely disfigured, and he has nearly stript off the skin with his tongue. He frequents the borders of woods; and as his sight is not very good, he remains there with his head placed near the ground, that he may be enabled to distinguish objects among the roots of the trees. Whenever he perceives any disagreeable object near him, even a piece of red cloth (for which he has a singular aversion), he darts suddenly upon it, bellowing hideously at the same time with a tone much deeper and stronger than that of the bull. A large herd of wild buffaloes grazing together on a plain in the interior of Africa, presented to Dr. Thunberg a very terrific spectacle. He and his companions, when

they had got a little way into a wood, perceived a herd, which appeared to consist of about five or six hundred large beasts, grazing in a plain that was skirted by the wood. The animals, intent upon their food, did not perceive the party till they arrived within three hundred paces; when the whole herd lifted up their heads, and viewed them with attention. We should naturally suppose that a sight so truly terrific as this must have been, was sufficient to appall the stoutest heart: nevertheless, as they were apprised of the nature of these animals, and how reluctantly they attack any one in the open plains, they did not seem to dread either their strength or number; but, not to frighten them, stood still, till they again stooped down to feed. Three of the party were Europeans, and as many Hottentots, trained to shooting, and provided with muskets, besides others who only carried javelins. Armed in this manner, with a determined air, they marched within forty paces of the buffaloes, who now began to look up again with a brisk and undaunted mien. They then judged it proper to discharge their muskets at once amongst them: and the effect was instantaneous; for the whole of them, intrepid as they appeared, surprised by the sudden flash and report, immediately made for the woods, leaving those that were wounded to follow as well as they could. "Amongst these," says our traveller, "was an old bull buffalo, who came close to the side where we stood, and obliged us to take to our heels and fly before him." He however passed on

one side, and proceeded towards the wood, but did not reach it before he fell. Dr. Thunberg describes this beast as having an extremely thick body, with short legs. He was of a dark gray colour, and almost destitute of hairs, which on the young animal are black. This and a female were the only two they killed with their muskets.

It appears that to meet a single buffalo is much more dangerous than to face a herd. Dr. Thunberg, having left his Hottentots and baggage behind him, crossed the *Koukuma river* with a guide and his sergeant, intending to pass through a thicket to a farm, which they discovered on the other side. But they had not gone far into the wood before they met with a large male buffalo, lying down alone in a spot that was free from bushes for the space of a few yards. As soon as he discovered the guide, who went first, he rushed upon him; but the man turning his horse behind a great tree avoided the beast, and got out of his sight. The sergeant, however, was not so fortunate, his horse being killed by the animal; though he escaped into a tree, where he was followed by the guide, who to save himself had left his horse to the mercy of the buffalo. The Professor, unconscious of what had happened, was collecting plants at a distance behind his companions. Just as the furious animal was mangling the second horse he came up to the opening, where the wood was so thick that he had neither room to turn his horse round nor to get on one side; he was therefore obliged to abandon him to

his fate, and take refuge in the branches of a tree. The buffalo, however, seemed satisfied with the mischief he had already done, and, leaving the other horse untouched, suddenly turned round and galloped off.

Dr. Sparrman, accompanied by some other gentlemen, attacked one of these ferocious creatures, which was preparing to make towards them from behind a bush. He fell, however, the moment they discharged their guns, but got upon his legs again, and ran down into the thickest part of the wood. Induced from this circumstance to suppose his wound mortal, they had the imprudence to follow him into the close thickets, through which they fortunately could not penetrate, and therefore retired to a rising ground to rest themselves. Soon afterwards, the buffalo, who only proved to be slightly wounded, came to the skirts of the wood opposite the gentlemen, and was making towards them; when a shot entered his belly, and forced the animal again to retire, dyeing the ground and bushes all the way he went with his blood. The party then advanced with the greatest caution, attended by their Hottentots, through the thin and more pervious part of the wood, where the buffalo had taken shelter. The furious animal had still strength enough left to renew the attack, and would have probably sacrificed some of them to his revenge, had he not received a shot in the lungs, which proved mortal. " During his fall, and before he died," says the doctor, " he bellowed in a most

stupendous manner; and this death song of his filled us all with no small degree of joy, on account of the victory we had gained: and so thoroughly is the human heart sometimes steeled to the sufferings of the brute creation, that we hastened forwards, in order to have the pleasure of seeing the buffalo struggle with the pangs of death. I chanced to be first at the spot; but think it impossible ever to behold anguish, accompanied by a savage fierceness, painted in stronger colours than they were in the countenance of this buffalo. I was within ten steps of him, when he perceived me, and, bellowing, raised himself suddenly again on his hind legs. I had since reason to believe that I was at the time very much frightened; for, before I could well take my aim, I fired off my gun, and the shot missed the whole of his huge body, and only hit him in the hind legs, as we afterwards discovered by the size of the ball. Immediately upon this I ran away like lightning, in order to look out for some tree to climb up into: but my apprehensions were groundless; he was too much exhausted to pursue me, and died soon after."

In Caffraria, when several buffaloes are seen together, and it is intended to hunt them, the man who discovers the place where they are, blows a pipe made of the thigh-bone of a sheep, which is heard at a great distance, and immediately obeyed by the surrounding inhabitants; who, armed with their javelins, assemble together, and attack the

beasts. But it sometimes happens, that while the buffaloes are running off, one of the hunters is tossed and killed; which accident, it seems, is not much regarded by the people of Caffraria. Dr. Thunberg assures us, that where there are not more than eight or twelve buffaloes, the inhabitants are so dexterous that they rarely suffer one of them to escape.

We shall conclude the natural history of this ferocious animal with the following account of a buffalo hunt; where Mr. Bruce's friend Ammonios makes such a conspicuous figure, that we cannot help digressing half a page to introduce him to our readers:

"Ammonios was a man of approved courage and conduct, who had been in all the wars of Ras Michael, and was placed about Ayto Confu, to lead the troops, curb the presumption, and check the impetuosity of that youthful warrior. He was tall, and awkwardly made; slow in speech and motion, so much as even to excite ridicule; about sixty years of age, and more corpulent than the Abyssinians usually are; in a word, as pedantic and grave in his manner as it is possible to express. He spent his whole leisure time in reading the scriptures, nor did he willingly discourse of any thing else. He had been bred a foot-soldier; and though he rode as well as many of the Abyssinians, yet, having long stirrup-leathers, with iron rings at the end of them, into which he put his naked toe only, he had no strength or agility on horseback, nor was his bridle

such as could command his horse to stop, or wind and turn sharply among trees, though he might make a tolerable figure on a plain."

The hunt is introduced by the appearance of a wild boar, who escapes, after having wounded a horse and a man belonging to Ayto Confu. Two buffaloes, who were found by some of the party, were not so fortunate; it appears they were both destroyed. "And all this," continues Mr. Bruce, "was in little more than an hour, when our sport seemed to be at the best; our horses were considerably blown, not tired; and though we were beating homewards, still we were looking very keenly for more game. Ammonios was on the left among the bushes, and some large, beautiful, tall, spreading trees, close on the banks of the river Bedowi, which stands there in pools. Whether the buffalo found Ammonios, or Ammonios the buffalo, is what we could never get him to explain to us; but he had wounded the beast slightly on the buttock, which, in return, had gored his horse, and thrown both him and it to the ground. Luckily, however, his cloak had fallen off, which the buffalo tore to pieces, and employed himself for a minute with that and with the horse, but then left them, and followed the man as soon as he saw him rise and run. Ammonios got behind one large tree, and from that to another still larger. The buffalo turned very awkwardly, but kept close in pursuit; and there is no doubt he would have worn our friend out, who was not used to such quick motion.

" The unfortunate Ammonios had been driven from tree to tree, till he had got behind one within a few yards of the water; but the brushwood upon the banks, and his attention to the buffalo, hindered him from seeing how far it was below him. Nothing could be more ridiculous than to see him holding the tree with both his hands, peeping first one way, and then another, to see by which the beast would turn. And well he might be on his guard; for the animal was absolutely mad, tossing up the ground with his feet both before and behind. ' Sir,' said I to Ayto Confu, ' this will be but an ugly joke to-night, if we bring home that man's corpse, killed in the very midst of us, while we were looking on.' Saying this, I parted at a canter behind the trees, crying to Ammonios to throw himself into the water, when I would strike the beast; and, seeing the buffalo's head turned from me, at full speed I ran the spear into the lower part of his belly, through his whole intestines, till it came out above a foot on the other side; and there I left it, with a view to hinder the buffalo from turning. It was a spear, which, though small in the head, had a strong, tough, seasoned shaft, which did not break by striking it against the trees and bushes; and it pained and impeded the animal's motions, till Ammonios, quitting the tree, dashed through the bushes with some difficulty, and threw himself into the river. But here a danger occurred that I had not foreseen. The pool was very deep, and Ammonios could not swim; so that, though he

escaped from the buffalo, he would infallibly have been drowned, had he not caught hold of some strong roots of a tree shooting out of a bank; and there he lay in perfect safety from the enemy, till our servants went round, and brought him out of the pool on the further side.

"In the mean time, the buffalo, mortally wounded, seeing his enemy had escaped, kept his eyes intent upon us, who were about forty yards from him, walking backwards to us, with intent to turn suddenly upon the nearest horse; when Ayto Confu ordered two men with guns to shoot him through the head, and he instantly fell. The two we first killed were females; this last was a bull, and one of the largest, confessedly, that had ever been seen. Though not fat, I guess that he weighed nearer fifty than forty stone. His horns, from the root, following the line of their curve, were about fifty-two inches, and nearly nine where thickest in circumference. They were flat, not round. Ayto Confu ordered the head to be cut off, and cleared of its flesh, so that the horns and skeleton of the head only remained: this he hung up in his great hall among the probosces of elephants, and horns of rhinoceroses, with this inscription in his own language: '*Yagoube, the Kipt, killed this upon the Bedowi.*'"

Our figure was done from a fine portrait of a wild buffalo, drawn by Mr. S. Daniell during his travels in Africa.

WILD SHEEP.

GENERIC CHARACTER.

Horns twisted spirally and pointing outwards.
Eight cutting teeth in the lower jaw, none in the upper.

SPECIFIC CHARACTER.

OVIS AMMON. O. cornibus arcuatis semicircularibus subtus planiusculis, palearibus laxis pilosis. *Linn. Syst. Nat. Gmel.* 1. p. 200.
With arched semicircular horns, flat beneath; the dewlaps loose and hairy.
CAPRA ORIENTALIS. Cornibus supra rotundatis, infra planis, semicirculum referentibus. *Briss. Regn. An.* p. 71. n. 12.
MUSMON. *Gesn. Quad.* p. 934.
Ovis fera sibirica, vulgo Argali. *Pall. Spic. Zool.* 11. p. 3. pl. 1, 2.

WILD SHEEP. *Penn. Hist. Quadr.* 1. p. 44. *Arct. Zool.* 1. p. 12. *Shaw Gen. Zool.* 2. p. 379. pl. 201. *Bew. Quadr.* p. 64. MUFLON. *Sm. Buff.* 6. p. 205. pl. 172.

THE wild sheep, or argali, as it is named by the Kirgisian Tartars, is the primitive stock from whence the different kinds of domestic sheep have sprung. It is an inhabitant of the alpine regions of Siberia, and of the mountainous parts of Kamtschatka, where

its attachment to the heights has obtained it the name of the Upper Rein Deer.

There is a singular difference between this kind and the domestic sheep; the body of the argali being covered with hair instead of wool, which, under the throat, is considerably longer than on other parts. The length of the coat varies according to the season. In summer it is short and smooth, like that of a stag; but in winter, when the severity of the weather calls for warmer clothing, the hair becomes much thicker, and conceals a fine, white, woolly down. The horns of these animals grow to an amazing size, having been sometimes found to weigh fifteen pounds a-piece, and to measure two Russian yards in length. Father Rubruquis says that he has met with them too large to be lifted together, with one hand, without great difficulty, and that large drinking-cups are made of them by the Tartars.

These animals are generally found on the tops of craggy rocks, or near the summits of the highest mountains, where there is but little wood to intercept the rays of the sun. Here they collect in small flocks, and dwell together in apparent security: but even on these almost inaccessible heights they are not left unmolested; for the hardy inhabitants of the northern regions, whose ardour for the chase stimulates them to surmount every difficulty, will frequently risk their lives in the pursuit of them. The Kamtschatkans, indeed, have a very reasonable excuse to allege for the danger they

incur, since the flesh of the wild sheep affords them a wholesome and nourishing food, while the skin serves them for a warm winter clothing. To obtain these essential necessaries of life, there is no labour which the Kamtschatkans will not undergo: they abandon their habitations with all their family in the spring, and continue the whole summer in the employ, amidst the rude mountains; fearless of the dreadful precipices, or of the overwhelming masses of snow, which rolling from the heights, and collecting as they fall, sometimes bury the sportsman and his family in one common ruin.

As soon as these creatures perceive a man, they ascend to the highest ground they can find; and to accomplish their purpose they will tread the narrowest paths, over the most dangerous places, with surprising agility. To follow them, as we have already observed, is both dangerous and difficult, and to approach near enough to shoot them requires the utmost stratagem. The rams are very quarrelsome animals, and fight with great fury. In these combats it frequently happens that one of them is pushed down a precipice, and sometimes both fall together entangled by the horns: in this state their remains are often found at the bottom; a convincing proof of their fatal quarrels.

The argali produce their young about the middle of March; and when the lambs are first born they are covered with a soft, gray, curling fleece, which as the season advances gradually changes, and becomes hair by the end of autumn. As the winter

approaches they descend with their young to feed on the grass, and such other vegetables as they can meet with: but their greatest luxury is salt; and whenever they can meet with a spot impregnated with this mineral they constantly leave the marks of their tongues; from whence such spots are called *licking-places*. The natives take advantage of this favourite propensity, and place pit-falls in the paths which lead to these spots, in which the unsuspecting animals are frequently caught. Other animals are equally fond of this relish, as we have noticed in the deer, who have their *licking-places* in America, to which they resort in large herds.

The rams among the wild sheep are said to be so strong that ten men can scarcely hold one. The young are easily tamed; and it is supposed that the first trial gave rise, among a gentle race of mankind, to the domesticating these most useful of quadrupeds; which, says Mr. Pennant, the rude Kamtschatkans to this moment consider only as objects of the chase, while every other part of the world enjoy their various benefits, reclaimed from a state of nature.

WILD GOAT.

GENERIC CHARACTER.

Horns rough, compressed, and bent backwards.
Eight cutting teeth in the lower jaw; none in the upper.
Chin, in the male, bearded.

SPECIFIC CHARACTER.

CAPRA IBEX. C. cornibus supra nodosis in dorsum reclinatis, gula barbata. *Linn. Syst. Nat. Gmel.* 1. p. 196.
Horns knobbed on their upper surfaces, and reclined backwards; throat bearded.
Capra cornibus lunatis rotundatis, supra rotundatis in dorsum reclinatis. *Erxl. Mamm.* p. 261. n. 2.
Ibex alpium sibiricarum. *Pallas. Spic. Zool.* xi. p. 31. pl. 3. et 5. fig. 4.
STEINBOCK. *Gesn.*

WILD GOAT. *Sm. Buff.* v. 6. p. 363. pl. 190, 191. *Penn. Hist. Quadr.* v. 1. p. 55. *Bew. Quadr.* p. 70. *Shaw Gen. Zool.* 2. pl. 198.

ALL the earth is replenished with inhabitants, and each hath its particular situation allotted it. All, again, differ in their nature and manner of life, yet each is best calculated for the place consigned it by Providence. The wild and rugged Alps, whose

tops are for ever hid in snow, and whose sides afford but a scanty herbage, seem badly calculated for the support of animal life; yet, as the Almighty always adapts the manners of his creatures to their means, the wild goat, who is destined to live in the mountains, finds them clothed with a sufficiency to satisfy his wants.

The country of the Grisons, the Carpathian and Pyrenean mountains, and the Rhætian Alps, give birth to abundance of goats, which are excessively wild, and frequently bound from rock to rock, or fling themselves down the steepest precipices, and yet escape unhurt. The object of our present attention is said by M. Buffon to be the stock from whence our domestic goat is descended, as it strongly resembles that animal in the shape of its body, though it differs considerably in the size of its horns, which are much larger. They are bent backwards, and full of knots; and it is asserted that the creature adds one to the number every year of its life. The ibex has a small head, adorned with a dusky beard; his coat is thick and warm: it is of a brown colour, with a black streak running along the top of the back. The belly, and back of the thighs, are of a tawny white: a thick and strong body, with muscular legs and very short hoofs, completes the figure of the animal. The females differ in being less than the males, in having shorter horns, and but few knobs on the upper surface.

Wild goats assemble in small flocks seldom exceeding fifteen in number: as soon as the sun rises,

they quit the woods, where they shelter themselves in the night, and slowly ascend to the highest parts of the mountains, feeding as they proceed. In the evening they again descend towards the woods, and take up their usual residence for the night.

In the months of August and September, the inhabitants who live amongst the mountains prepare to hunt the ibex; for the chase of these animals requires so good a head to bear the tremendous heights to which the hunters must ascend, and so much strength, vigour, and activity, that none but those who are used to an alpine country will dare to attempt it. The hunters generally go two or three together, armed with rifle-barrelled guns, and furnished with a small bag of provision; they erect a miserable hut of turf among the heights, where they frequently pass the night without fire or covering, and sometimes, on waking in the morning, find the entrance blocked up with snow three or four feet deep: when during the chase they are overtaken by darkness amid crags and precipices, they are obliged to pass the whole night standing, and clinging together, in order to support each other and prevent themselves from sleeping. This description does not seem calculated to place the chase of these animals in a very enviable light; yet Mr. Coxe, in his travels through Switzerland, had one of these people for a guide, who expatiated with great enthusiasm on the profession of a chasseur!

Another animal of similar habits, and living in the same places, though of a different species, is

the chamois. Linnæus has placed this creature among the antelopes; but as its resemblance to the goat was sufficient to induce the Count de Buffon to describe them both under one head, we shall take the liberty to do the same.

The chamois is about the size of the domestic goat, and, though a wild animal, is very docile, and easily tamed. The horns of the chamois are slender, black, upright, and hooked at the end: behind each there is a large orifice in the skin: the forehead is brown; the cheeks, chin, and throat white; the rest of the body brown, except the belly, which is yellowish. The hair is long, the tail short, and the hoofs like those of the goat.

The chamois are found in great plenty in the mountains of Dauphiny, Piedmont, Savoy, Switzerland, and Germany. They usually go out in herds of twenty or thirty, and are seen feeding upon the crags of the mountains, with generally one of them posted as a sentinel upon an adjacent height, who is relieved at short intervals by another. The sentinel looks around with great solicitude, and on the least suspicion of danger alarms the herd, and the whole of them instantly decamp.

The chamois has scarcely any cry, unless it is a kind of feeble bleat, by which the parent calls his young. But in cases of danger, and when it is to warn the rest of the flock, he uses a hissing noise which is heard at a great distance. It is observed that this animal is extremely vigilant; has an exceedingly quick and piercing eye, and has the sense

of smelling in the highest perfection. When the chamois is surprised by a person, he stops for a moment, but immediately afterwards flies off, and is presently out of sight. Such is the timidity of this creature that he is constantly on the watch, and upon the least alarm begins his hissing note with such force that the rocks and forests re-echo to the sound. The first hiss continues as long as one inspiration. In the beginning it is very sharp, and deeper towards the close. The animal having, after the first alarm, reposed a moment, again looks round, and, perceiving the reality of his fears, continues to hiss by intervals, until he has spread the alarm to a very great distance. During this time he seems in the most violent agitation; he strikes the ground with one of his fore feet, and sometimes with both: he bounds from rock to rock; he turns and looks around, then runs to the edge of the precipice, and, if he still perceives the enemy, flies with all his speed. The hissing of the male is much louder and sharper than that of the female; it is performed through the nose; and is nothing more than a very strong breath driven violently through a small aperture.

The chamois is choice in his food, picking the most delicate parts of the herbage, and regaling upon the aromatic plants which are found upon the sides of the mountains. He drinks moderately, and chews the cud in the intervals of feeding. These animals are so much incommoded by heat, that in the summer they frequent the caverns of rocks, or

retire amidst fragments of unmelted ice, under the shade of high and spreading trees, or of rough and hanging precipices, that face to the north, and which defend them completely from the rays of the sun. They run along the rocks with such ease, and leap from one to the other with such agility, that no dogs can possibly follow them. They climb and descend precipices that are inaccessible to all other quadrupeds; and it is really astonishing to see them descend to a distance in an oblique direction, then fling themselves down a rock of twenty feet, and light with great security upon some excrescence, or fragment, on the side of the precipice, which is just large enough to place their feet upon. In their descent they are observed to strike the rock three or four times with their feet, to stop the velocity of their motion; and when they have got upon the base below, they at once seem fixed and secure. Their legs are well calculated for this arduous employment, the hinder being rather the longest, and bending in such a manner that when they descend upon them they break the force of the fall. During the rigours of winter the chamois retire into the forests, and feed upon the shrubs and the buds of the pine-tree. They are likewise very fond of the rein-deer lichen, (*lichen rangiferinus Linn.*) which is found in such great quantities as in many places to cover the summits and sides of the mountains. In order to procure their favourite food, they, like the rein-deer, clear away the snow

with their fore feet, frequently thawing it with their breath for the purpose of loosening it more easily.

The hunting of the chamois is both laborious and difficult. The common way is to hide behind the clefts of the rocks and shoot them. This however must be done with great precaution; the sportsman must creep for a considerable way upon his belly, in silence, and be very particular with regard to the wind, which should not blow from him, lest they should detect the hunter by the smell. When he arrives at a proper distance, he advances his rifle-barrelled piece, loaded with a single ball, and tries his fortune among them. The chamois are occasionally pursued, by placing proper persons at all the passages of a valley, and then sending in others to rouse them. We are assured that dogs are rather prejudicial than useful in this chase, as they only serve to alarm the game without being able to overtake it. This employment is not without danger even to the men; for it sometimes happens, that the animal, when he finds himself overpressed, will drive at the hunter with his head, and tumble him down the neighbouring precipice.

A chasseur will kill from six to fifteen chamois in a year: with the flesh, which is very delicate, he helps to support his family, and disposes of each skin for a guinea. In this manner, even in the wildest solitudes, the poor have their comforts; and in these mountainous retreats, where the landscape

presents only a scene of rocks, heaths, and shrubs, that speak the wretchedness of the soil, these simple people are contented to pass their days: they are furnished with all the necessaries of life, while their remote situation happily keeps them ignorant of greater luxury.

GIRAFFE.

GENERIC CHARACTER.

Horns short, erect, truncated at the top, and terminated with a tuft of black hair.

Eight cutting teeth in the lower jaw; the two outermost deeply bilobated.

No teeth in the upper jaw.

SPECIFIC CHARACTER.

CAMELOPARDALIS GIRAFFA.	*Linn. Syst. Nat. Gmel.* 1. p. 181. CERVUS CAMELOPARDALIS. C. cornibus simplicibus, pedibus anticis longissimis. *Linn. Syst. Nat. ed.* xii. p. 92. Horns simple: fore legs, including the shoulders, very long.
GIRAFFE.	*Sm. Buff.* vol. 7. p. 109. pl. 214. *Penn. Hist. Quadr.* v. 1. p. 65. pl. 11. *Bew. Quadr.* p. 106. *Shaw Gen. Zool.* 2. pl. 181, 182.

THIS astonishing creature forms a genus of itself, and is not to be equalled in height by any animal in the world. He so far overtops every other quadruped, that we are almost ready to believe Goldsmith, when he says " that a man on horse-

back could with ease ride under his belly without stooping." The giraffe measures seventeen feet from the crown of the head to the soles of the fore feet; though he falls so abruptly from the shoulders, that from the top of the rump to the bottom of the hind feet he only measures nine. This is not owing to any real difference in the length of the legs, but to the vast length of the shoulders, which gives the disproportionate height between the fore and hind parts. On the highest part of the head are situated two straight horns about six inches long, tufted at the top. Besides these horns, says the Count de Buffon, which are found on the head of the female giraffe, as well as on that of the male, there is, at almost an equal distance between the nostrils and eyes, a remarkable excrescence, which seems to be a bone covered with a soft skin, and garnished with smooth hair. This osseous excrescence is more than three inches long, and is much inclined towards the front, or makes a very acute angle with the bone of the nose. The colour of this animal's robe is a bright shining yellow, and the spots are, in general, rhomboidal.

The Count thinks it extremely probable, from the inspection of these horns, which are solid, and resemble in substance the horns of the stag, that the giraffe may be ranked in the same genus. Of this there could not remain a doubt, if we were certain that he shed his horns annually. But it is now unquestionable that he ought to be separated

from the ox kind, and other quadrupeds whose horns are hollow. Meanwhile we shall consider this large and beautiful animal as constituting a particular and solitary genus, which corresponds very well with the other facts in Nature, who, in voluminous species, never doubles her productions. The elephant, the rhinoceros, the hippopotamus, and perhaps the giraffe, are animals forming particular genera, or solitary species, which have no collaterals. This is a privilege which seems to be conferred solely on animals that greatly surpass all others in magnitude.

Buffon received the following description of this very singular quadruped from a friend in Holland:

"Africa produces no animal more beautiful or more curious than the giraffe. From the point of the nose to the tail, he is twenty-five feet long. He has received the name of *camelopard*, because he somewhat resembles the camel in the figure of his head, the length of his neck, &c., and because his robe is variegated with irregular spots, like that of the leopard. He is found at twenty-four leagues from the Cape of Good Hope, and is still more frequent at greater distances. The teeth of this animal are similar to those of the stag. His horns are a foot long: they are straight as a man's arm, garnished with hair, and seem to be truncated at their extremities. The neck constitutes at least one-half of the length of the animal, which in figure pretty much resembles that of a horse. The tail

would also be pretty similar, if it were equally furnished with hair as that of the horse. The legs are like those of the stag; the feet are garnished with very black, obtuse, and widely separated hoofs. When the animal leaps, he first raises the two fore feet, and then those behind, as a horse would do who had his two fore feet tied together. He runs slowly, and with a bad grace; he may be easily overtaken in the chase. He carries his head always high, and feeds on the leaves of trees only, being unable to pasture on the ground, on account of his great height. When he drinks he is obliged to rest on his knees. The females are generally of a bright yellow colour, and the males of a brownish yellow. Some of them are nearly white, with brown or black spots."

All that we at present know of the manners of the giraffe, independent of what has already been mentioned, is, that he is very timid; that of trees, he prefers the mimosa and wild apricot to all others; that, from the length of his fore legs, he cannot graze without dividing them to a great distance; that he is perfectly gentle, and kneels like a camel when he would lie down. Mr. Pennant says, he saw the skin of a young one at Leyden, well stuffed and preserved; otherwise he might possibly have entertained doubts in respect to the existence of so extraordinary a quadruped.

That the giraffe was known to the Romans, in very early times, appears from the famous Prenes-

tine pavement, in which it is clearly represented, and not only so, but two of these animals together, one in the attitude of grazing, the other browsing. This antient subject gives a very tolerable figure of the animal, and was long the chief evidence of its existence.

DEER.

GENERIC CHARACTER.

Horns solid, branched; fall off and are renewed annually. Eight cutting teeth in the lower jaw; none in the upper.

ELK.

SPECIFIC CHARACTER.

Cervus Alces.	C. cornibus acaulibus palmatis, caruncula gutturali. *Linn. Syst. Nat. Gmel.* 1. p. 175.
	Horns with short beams, spreading into large and broad palms: a tufted excrescence at the throat.
	Cervus cornibus ab imo ad summum palmatis. *Bris. Regn. Anim.* p. 93. n. 9.
	Orignal. *Charlev. Nouv. Franc.* 3. p. 126.
Elk. . . .	*Sm. Buff.* v. 6. p. 315. pl. 188. *Penn. Hist. Quadr.* v. 1. p. 105. pl. 17. *Bew. Quadr.* p. 108. *Shaw Gen. Zool.* 2. pl. 174—175.
	Moose. *Penn. Arct. Zool.* v. 1. p. 17. pl. 8.

The American Indians have many strange opinions relating to the elk. They universally believe him subject to the epilepsy, and that he cures it by scratching his ear with his hind hoof till he draws blood. In consequence of this particular and pow-

erful virtue in the hoof, it has been celebrated by them as a remedy in the falling sickness. The patient is directed to apply it to his heart, holding it at the same time in his left hand, and to conclude the ceremony with it by imitating the elk. They likewise pulverize the hoof and drink it in water, for the cure of the colic, pleurisy, vertigo, and purple fever. They believe him to be a beast of good omen, and that those who dream often of the elk may flatter themselves with long life.

The elk and the moose-deer is the same animal, only known by the former name in Europe, and by the latter in America.

The elk is provided with amazing horns; the largest Mr. Pennant ever saw weighed fifty-six pounds, the length thirty-two inches; they measured between tip and tip thirty-four inches, and the breadth of the palm was thirteen and a half. This palmated part is frequently excavated by the savages, and converted into ladles which will hold a pint. The brow antlers are wanting. The nostrils are large, the eyes small, and the ears long and slouching like an ass's. A remarkable deep furrow appears in the middle of the upper lip, which hangs far over the lower one. Along the top of the neck runs a short, thick, upright mane, of a light brown colour. The hind legs are the longest, the hoofs much cloven, the tail short, and the body compact, and of a dark brown colour. The greatest height of the elk is about seventeen hands, and it has been known to weigh 1229 pounds.

These animals have such short necks and such long legs, that they cannot graze with any degree of comfort, and therefore generally reside amidst forests, for the purpose of browsing the boughs of trees. They feed likewise upon water plants, which their long legs enable them very readily to get at. They are very fond of the *anagyris fœtida*, or stinking bean trefoil, and will remove the snow to a considerable depth, with their feet, on purpose to obtain it. They are said to feed principally in the night; and for the reason just mentioned, they always, when they graze, choose an ascent. From the appearance of the stuffed specimen preserved in the Leverian Museum, we conclude that they are able to run with great swiftness, and would probably far outstrip the hunters, if they were not pursued in the winter when the ground is covered with snow to the depth of three or four feet. This is the season in which the American Indians prepare to hunt the moose-deer; and they choose a time when the sun begins to melt the surface of the snow, which freezes again at night into an icy crust, by far too weak to support the weight of the animal, who sinks and plunges at every step he takes: besides this impediment, which alone is sufficient to prevent his escape, he has to break his way through the forests, where the pine branches obstruct his flight by entangling his lofty horns, and his track may be very readily traced by the many scattered fragments which are left behind him. In this manner the chase is continued; and notwithstanding

these obstacles, it has been sometimes known to last for two or three days together before the beast is captured. The Indian, to prevent his sinking in the snow, provides himself with broad snow-shoes; and with these he goes steadily on till the fatigued animal suffers him to get near enough to dart his lance, which he does with a dexterity that seldom fails to effect his purpose: the poor wounded deer, thus excited to redouble his exertions, leaves his pursuer at a distance, till, his strength failing, he is obliged again to expose himself to the dart of the hunter, and again attempts to escape. Tired at length and completely spent with the loss of blood, he is compelled to submit to a fate, which nothing but stratagem on the part of his adversary could ever enable him to effect.

Mr. Pennant, in his Arctic Zoology, has mentioned different ways of hunting these animals, extracted from Charlevoix. The first and most simple is before the lakes or rivers are frozen; when a great number of Indians assemble in their canoes, and form with them an extensive crescent, each horn touching the shore. Another party perform their share of the chase in the woods; where they surround an extensive tract, and, having unloosed their dogs, press towards the water with loud cries. The timid creatures, terrified at the noise, fly before the hunters, and plunge into the lake; where they are killed by the people in the canoes.

The other method is thus described: "The savages

enclose a large space with stakes, hedged with branches of trees, forming two sides of a triangle: the bottom opens into a second enclosure completely triangular. At the opening are hung numbers of snares made of slips of raw hides. The Indians, as before, assemble in great troops, and with all kinds of noises drive into the first enclosure not only the mooses, but the other species of deer which abound in that country: some, in forcing their way into the furthest triangle, are caught in the snares by the neck or horns; and those which escape the snares, and pass the little opening, find their fate from the arrows of the hunters, directed at them from all quarters."

The flesh of the elk is very much esteemed, and said to be far more nourishing than any other animal food. The tongue is in high request, but not equal to the nose, which is like marrow, and reckoned a dainty morsel in all Canada.

The Indians are so superstitious as to believe that there is an elk of an enormous size, which can wade with ease through eight feet depth of snow. This phantom is invulnerable, and has an arm growing out of its shoulder, which answers all the purposes of the human. It likewise has a court of other elks, who at all times perform suit and service, according to his royal will.

The hide of the elk is dressed by the Indians; and after it has been soaked and stretched, they supple it with a lather made of the brains in hot

water. Their snow-shoes are made of the skin, and they are said even to form canoes of it, by sewing it neatly together, and covering the seams with an unctuous earth. In these slight vessels will the fearless savages embark, and return home, after a chase, laden with their spoils.

The elk if taken young may be esily tamed, and will become attached to its master. M. d'Obsonville procured one in India of ten or twelve days old, and kept it about two years without ever tying it up. " I even let it run abroad," says this gentleman, " and sometimes amused myself with making it draw in the yard, or carry little burthens. I accustomed it to eat any thing: it came when called, and I found few signs of impatience, except when it was not allowed to remain near me. When I departed for the island of Sumatra, I begged Mr. Law, of Lawriston, governor-general, who had always testified a remarkable degree of esteem and friendship for me, to accept it. This gentleman had no opportunity of keeping it about his person, as I had done, but sent it to his country-house, where it wanted for nothing; but being kept alone, and chained in a confined corner, it presently became so furious as not to be approached; insomuch that the person who daily brought its food was obliged to leave it at a distance. After some months absence, I returned. It knew me afar off, and as I observed the efforts it made to get at me, I ran to meet it; and I confess I can never

forget the impression which the caresses and transports of this unhappy animal made upon me. A friend of mine, who was present at this meeting, could not forbear to sympathize with me, and partake of my feelings."

Although these animals are naturally inoffensive, yet they will sometimes, when wounded, attack the aggressor with fury, and trample him to death.

REIN DEER.

SPECIFIC CHARACTER.

CERVUS TARANDUS. C. cornibus ramosis recurvatis teretibus; summitatibus palmatis. *Linn. Syst. Nat. Gmel.* 1. p. 176.

Horns rounded, branched, and bent forwards, palmated at the top.

REIN DEER. . . . *Sm. Buff.* v. 6. p. 315. pl. 189. *Penn. Hist. Quadr.* 8. v. 1. p. 111. pl. 18. *Penn. Arct. Zool.* v. 1. no. 4. *Bew. Quadr.* p. 114. *Shaw Gen. Zool.* 2. pl. 175.

WE trust no apology will be necessary for introducing our account of this interesting animal, with a slight comparative view of the value set upon his services by the different Northern nations. Mr. Pennant, to whom we are chiefly indebted for what follows, collected much of his information on this subject from the writings of Linnæus.

With the Laplanders the rein deer is the substitute to the horse, the cow, the sheep, and the goat. Those most innocent of people have, even under their rigorous sky, some of the charms of a pastoral life. They have subdued these animals to various uses, and reclaimed them from their wild

REIN DEER.

Designed by W. Daniell.

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state. When the heat of summer becomes oppressive, and the insects which abound in the marshy bottoms begin to torment the rein deer, they attend them to the summits of their alps; to the sides of their clear lakes and streams, often bordered with native roses. They know the arts of the dairy, milk these their cattle, and make from it a rich cheese. They train them to the sledge, consider them as their chief treasure, and cherish them with the utmost tenderness.

> Their rein-deer form their riches. These their tents,
> Their robes, their beds, and all their homely wealth
> Supply, their wholesome fare, and cheerful cups.
> Obsequious at their call, the docile tribe
> Yield to the sled their necks, and whirl them swift
> O'er hill and dale, heap'd into one expanse
> Of marbled snow, as far as eye can sweep,
> With a blue crust of ice unbounded glaz'd.
>
> THOMSON.

The brutish Samoied considers them in no other view than as animals of draught, to convey them to the chase of the wild deer; which they kill for the sake of their skins, either to clothe themselves, or to cover their tents. They know not the cleanly delicacy of the milk or cheese; but prefer for their repasts the intestines of beasts, or the half-putrid flesh of a horse, ox, or sheep, which they find dead on the high road.

The Koreki, a nation of Kamtschatka, may be placed on a level with the Samoieds: these wanderers keep immense herds of rein deer, some of

the richest to the amount of ten or twenty thousand; yet so sordid are they as to eat none except what they kill for the sake of their skins, and a few which they occasionlly sacrifice to appease the wrath of a malignant spirit. Unless trading with their neighbours the Kamtschatkans for their skins, they content themselves with the flesh of those which die by disease or chance. They train them in the sledge, but neglect them for every domestic purpose.

The inhabitants about the river Kolyma, after having dressed the soft skins of the rein deer, use them for sails to a kind of boat called *schitiki.*

The savage and uninformed Esquimaux and Greenlanders, who possess, amidst their snows, these beautiful animals, neglect not only the domestic uses, but even are ignorant of their advantage in the sledge. Their element is properly the water; their game the seals. They seem to want powers to domesticate any animal but dogs. They are at enmity with all; consider them as an object of chase, and of no utility till deprived of life. The flesh of the rein deer is the most coveted part of their food; they eat it raw, dressed, and dried and smoked with the snow lichen. The wearied hunters will drink the raw blood; but it is usually dressed with the berries of the heath: they eagerly devour the contents of the stomach, but use the intestines boiled; and are so fond of the fat that they never waste a morsel. The soft and pliant skin, dressed with the hair on, sometimes serves them for

a part of their clothing; it forms also a warm inner lining for their tents, and makes most excellent blankets. The tendons are their bow strings, and, when split, are the threads with which they sew their jackets.

The rein deer has large but slender horns, covered with a down like velvet, palmated towards the top, and bending forwards in a peculiar manner. Here we cannot help remarking the wisdom of Providence, in thus providing the animal with the means of satisfying his wants; for, had the horns been straight like other deer, they would have been of no use in removing the deep snow which covers the ground in those inclement regions, and hides from them their favourite lichen. The height of a full grown rein deer is about four feet six. The animal is admirably defended against the cold by the great thickness of his hair, which is placed so close as completely to hide the skin, even if it is put aside with the greatest care. The colour of the hair is brownish when the coat is first shed, but turns of a hoary whiteness after it has been for some time exposed to the rigour of the winter season. A large tuft of a dirty white colour hangs from the neck, and the animal has invariably a black space round the eyes. A white ring surrounds the feet just at the insertion of the hoof, which is broad and deeply cloven. The crackling noise which these creatures make when they run, is owing to their loose hoofs being drawn up forcibly together; and they make such a prodigious clatter,

that we are assured a rein deer may be heard as far as it can be seen.

The female is provided with horns; but they are smaller, and have fewer branches than those of the male. They bring forth two at a time.

The rein deer is only to be found in very high latitudes, and abounds most in those icy regions where

> "Earth's universal face, deep hid and chill,
> Is one wild dazzling waste, that buries wide
> The works of Man."

Large herds of them are to be met with within the Arctic circle, from the country of the Samoieds, as far as Kamtschatka, and in the inhospitable island of Spitzbergen. They are not, however, confined within the polar regions, but are spread about Hudson's Bay, Labrador, and the northern parts of Canada; a single instance is recorded of one having wandered as far as Quebec. It may be readily supposed, that an animal formed to endure the extreme severity of these climates, will be but badly calculated to bear any degree of warmth: this indeed is the case: nevertheless the rein deer is obliged to submit to the scorching rays of a Lapland sun, which shines, in the most northern parts, for two months of the year without intermission. During this time these poor animals suffer the greatest torment: the sun's heat brings to life innumerable swarms of insects, that not only cover the weedy lakes with which this country abounds

beyond all others, but fill the air like clouds of dust, and almost choke the inhabitants. These insects settle about the heads of the rein deer, and drive them almost to distraction; so that they are obliged to take shelter near a large fire of tree moss, which the Laplander makes and continually renews, that the intense smoke arising from it may keep off the gnats. Thus, to prevent one inconvenience they incur another. They have still a greater plague to fear in the summer: the Lapland gadfly (*œstrus tarandi Linn.*) if possible will deposit its eggs under the skin of the rein deer, where they are hatched; and the larvæ, burrowing in the body of the animal, wound it in many places, and often bring on diseases which prove fatal. The moment one of these insects is discovered in the air, the whole herd is agitated; and the poor distressed creatures declare their impatience by flinging up their heads, tossing about their horns, and moving in every direction to prevent the fly from settling on their bodies: but all their endeavours prove ineffectual, unless, to avoid the pest, they seek for protection in the snows which cover the summits of the loftiest mountains. There they will remain all day, and rather suffer from want of food, than run the chance of meeting with their persecutor. Towards the end of September the winter begins to return, the gnats and flies are no longer to be feared, the ground becomes covered with snow, and the rein deer again breathe with freedom.

Their only food at this season is the rein liver-wort, (*lichen rangiferinus Linn.*) which frequently lies buried several feet beneath the snow. We have already observed, that Providence has prepared for them a spade in their broad palmated antler, which never fails to effect their purpose. With this they dig to any depth, and thus arrive at their beloved food.

About the middle of May the female brings forth her young, and continues to give milk for some months; thus affording to her master a nourishment superior in richness to the milk of the cow. Their fondness for their young is remarkable, and does not cease till they have nearly acquired their full strength. The Laplander, who is often possessed of large herds of these useful creatures, drives them every morning and evening to the cottage to be milked; where a fire has previously been kindled, and the cottage filled with smoke, that the rein deer may be free from the tormenting gnats, and remain quiet while milking. When this is done, the herdsman returns them to their pasture; where nature has so amply provided for the few wants of these animals, that the Laplander gives himself no concern about their sustenance. They make cheeses with the new milk: the whey, which remains after the curd is separated, they feed upon during the summer. It is said to be pleasant and well tasted, but not very nourishing. In this manner, says an interesting writer, the pastoral life is still continued near the pole; neither the coldness of the winter,

nor the length of the nights, neither the wildness of the forest, nor the vagrant disposition of the herd, interrupt the even tenour of the Laplander's life. By night and day he is seen attending his favourite cattle, and remains unaffected in a season which would be speedy death to those bred up in a milder climate. He gives himself no uneasiness to house his herds, or to provide a winter subsistence for them; he is at the trouble neither of manuring his grounds, nor bringing in his harvests; he is not the hireling of another's luxury; all his labours are to obviate the necessities of his own situation; and these he undergoes with cheerfulness, as he is sure to enjoy the fruits of his own industry. If, therefore, we compare the Laplander with the peasant of more northern climates, we shall have little reason to pity his situation; the climate is rather terrible to us than to him; and as for the rest, he is blessed with liberty, plenty, and ease. The rein deer alone supplies him with all the wants of life, and some of the conveniences; serving to show how many advantages nature is capable of supplying, when necessity gives the call. Thus, the poor, little, helpless native, who was originally, perhaps, driven by fear or famine into those inhospitable climates, would seem, at first view, to be the most wretched of mankind: but it is far otherwise; he looks round among the few wild animals that his barren country can maintain, and singles out one from among them, and that of a species which the rest of mankind have not thought worth taking

from a state of nature; this he cultivates, propagates, and multiplies, and from this alone derives every comfort that can soften the severity of his situation.

When the Laplander sets out upon a journey, he is strapped into a sledge, which is made very light, and shod at the bottom with the skin of the rein deer. The animal is yoked to the carriage by a collar, from which a trace passes under the belly, between the legs, to the fore part of the sledge, where it is fastened. The driver guides the animal with a cord fastened round the horns, with which he strikes him gently on one side or the other, according as he wishes him to turn to the right or left; and when he flags, the Laplander encourages him to proceed with his voice. Thus he is carried across the country with incredible swiftness, and transported over frozen snows, where a horse would be of no service. In general, the deer can travel about thirty miles without halting, and this without any great effort; but when hard pushed they will trot sixty English miles at a stretch; though when so driven the poor creature is almost broken-hearted, and, if not killed immediately by the Laplander, will die in a few days.

This mode of travelling, though very expeditious, is both inconvenient and dangerous; for, if the traveller does not balance himself properly in his sledge, he may chance to be overturned; and, if the animal proves refractory, which is sometimes the case with the wild breed that are used to draw,

he will turn upon his master, who can only escape from his fury by turning the sledge over, and lying close under it till the beast has revenged himself upon the bottom.

Rein deer seldom live above fifteen or sixteen years: at a proper period the Laplander kills them, by thrusting a sharp-pointed knife through the back of the neck, between the vertebræ, into the spinal marrow, which deprives them instantly of all sense and motion. The flesh is dried for provision, the tongue for exportation, and the skin made into clothing.

VIRGINIAN DEER.

SPECIFIC CHARACTER.

CERVUS VIRGINIANUS.	C. cornibus ramosis antrorsum versis parum palmatis. *Linn. Syst. Nat. Gmel.* 1. p. 179.
	Horns much branched; bending greatly forwards, and slightly palmated.
	DAMA VIRGINIANA. *Raj. Quadr.* p. 86.
	CERVUS PLATYCEROS. *Sloan. Jam.* 2. p. 328.
VIRGINIAN DEER. . .	*Penn. Hist. Quadr.* 1. p. 116. n. 55. *Arct. Zool.* 1. p. 28. n. 6.

LARGE herds of Virginian deer inhabit the southern provinces of Canada, where they are seen grazing in the neighbourhood of the great rivers by which that country is intersected. They are restless animals, constantly in motion, and subject to worms in their heads and throats, especially those which live very near the shore. The deer are in better plight that keep in the savannas at a distance from the water, where they are less exposed to the attacks of the insects from whose eggs the worms are generated.

The body of the Virginian deer is of a brownish ash-colour; the belly, sides, shoulders, and thighs are white mottled with brown; the tail, which is ten inches long, is of a dusky colour. This species

of deer is not so well haunched nor so active as the English; neither is the venison by any means so good. In summer they feed on the grass which the savannas afford, and during the winter on the lichen which hangs from the trees. They are very fond of salt, and generally leave the marks of their tongues wherever the earth is impregnated with it. Great numbers of them may be seen assembled about these saline spots, which have been named *licking-places* by the hunters, who are sure of finding the deer there: indeed, they are so much pleased with the relish, that although they are often driven away they will return to the spots again.

Mr. Pennant has collected some interesting particulars respecting the singularities observed by the hunters in the chase of these animals. He observes that the deer are of the utmost importance to the savages, and says that as far back as 1764, 25,027 skins were imported from New York and Pennsylvania. The skins, in fact, form the greatest branch of their traffic, by which they procure from the colonists, by way of exchange, many of the articles of life. When cut into small pieces, and dried by a gentle fire, it is said to form their principal food; and as it is very portable, and will keep for a great length of time, it is particularly calculated for a people whose pursuits oblige them to be almost constantly from home.

Hunting is more than an amusement to the savages. They give themselves up to it not only

for the sake of subsistence, but to habituate themselves to fatigue, that they may make the better warriors. Those who fail in the sports of the field are never supposed to be capable of supporting the hardships of a campaign; they are degraded to ignoble offices, such as dressing the skins of the deer, and other employs allotted only to slaves and women.

"When a large party," says Mr. Pennant, "meditates a hunting-match, which is usually at the beginning of winter, they agree on a place of rendezvous, often five hundred miles distant from their homes, and a place, perhaps, that many of them had never been at. They have no other method of fixing on the spot than by pointing with their finger. The preference is given to the eldest, as the most experienced.

"When this matter is settled they separate into small parties, travel and hunt for subsistence all the day, and rest at night: but the women have no certain resting-places. The savages have their particular hunting-countries; but if they invade the limits of those belonging to other nations, feuds ensue, fatal as those between Percy and Douglas in the famed Chevy Chase.

"As soon as they arrive on the borders of the hunting-country, (which they never fail doing to a man, be their respective routes ever so distant or so various) the captain of the band delineates on the bark of a tree his own figure, with a rattle-snake twined

round him with distended mouth; and in his hand a bloody tomahawk. By this he implies a destructive menace to any who are bold enough to invade their territories, or to interrupt their diversion.

"The chase is carried on in different ways. Some surprise the deer by using the stale of the head, horns, and hide; but the general method is performed by the whole body. Several hundreds disperse in a line, encompassing a vast space of country, fire the woods, and drive the animals into some strait or peninsula, where they become an easy prey. The deer alone are not the object; foxes, racoons, bears, and all beasts of fur, are thought worthy of attention, and articles of commerce with the Europeans.

"The number of deer destroyed in some parts of America is incredible; it is pretended, from an absurd idea which the savages have, that the more they destroy, the more they shall find in succeeding years. Certain it is that multitudes are destroyed; the tongues only preserved, and the carcases left a prey to wild beasts. But the motive is much more political. The savages well discern, should they overstock the market, that they would certainly be over-reached by the European dealers, who take care never to produce more goods than are barely sufficient for the demand of the season, establishing their prices according to the quantity of furs brought by the natives. The hunters live in their quarters with the utmost festivity, and indulge in all the luxuries of the country. Their

viands are exquisite. Venison boiled with red pease; turkeys barbecued, and eaten with bears' fat; fawns cut out of the doe's belly, and boiled in the native bag; fish, and crayfish, taken in the next stream; dried peaches and other fruits, form the chief of their good living. They bring along with them their wives and mistresses; not that they pay any great respect to the fair. They make, like the Cathnesians, arrant pack-horses of them, loading them with provisions, or the skins of the chase; or making them provide fire-wood. Love is not the passion of a savage, at least it is as brief with them as with the animals they pursue."

It is highly probable that the anatomical structure of this species and of the European fallow deer is the same, and that they are both provided with similar facial orifices. There is something extraordinary in these vents. They did not escape the observation of the late Mr. White, of Selborne, who tells us that they have a communication with the nose, and open, one at the inner corner of each eye. They are of singular service to the animal when he drinks, as it is his custom to plunge his nose deep into the water, and continue in that situation a considerable time. During the draught he breathes through the vents, which he can open at pleasure, and thus indulge himself without inconvenience. It seems this gentleman's opinion, that this curious formation of the head may be of great service to beasts of chase, by affording them free respiration; and no doubt these ad-

ditional nostrils are thrown open when they are hard run.

This peculiarity is not confined to the deer alone; for Mr. Pennant was surprised to find something analogous in the conformation of the antelope, which he remarks as having a long slit beneath each eye, that the animal can open and shut at pleasure. He held an orange to one, and found that the creature made the same use of these orifices as of his nostrils; applying them to the fruit, and seeming to smell it through them.

CAMEL.

GENERIC CHARACTER.

Six cutting teeth in the lower jaw; none in the upper.
Upper lip divided.
Hoofs small.

SPECIFIC CHARACTER.

Camelus Dromedarius.	C. topho dorsi unico. *Linn. Syst. Nat. Gmel.* 1. p. 168. With one bunch on the back. Forsk. Fn. orient. p. 4.
Arabian Camel. . . .	*Sm. Buff.* v. 6. p. 118. pl. 168. *Penn. Hist. Quadr.* p. 129. pl. 23. *Bew. Quadr.* p. 140. *Shaw Gen. Zool.* 2. pl. 166.

The Arabs emphatically call the dromedary the ship of the desert; and the name does not seem misapplied, when we consider him as the only animal capable of conveying their merchandise across the burning sands. The driest thistle, or the barest thorn, is all the food this useful animal requires; and even these, to save time, he eats while advancing on his journey, without stopping, or occasioning a moment of delay. As these creatures

ARABIAN CAMEL.

Designed by W. Daniell.

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are destined to cross immense deserts where little water is found, and countries not even moistened by the dew of heaven, they are endowed with the power at one watering-place of laying in a store with which they supply themselves for many days to come. To contain this enormous quantity of fluid, Nature has formed large cisterns within them, from which, once filled, they draw at pleasure the quantity they want, and pour it into the stomach with the same effect as if they immediately drew it from a spring. With this they travel patiently and vigorously all day long, carrying prodigious loads through countries affected with poisonous winds, and glowing with parching and never-cooling sands.

The following anecdote from Mr. Bruce's Travels will serve to show the capability of the camel's reservoir to contain large quantities of water:

" On the 27th, at half past five in the morning, we attempted to raise our camels at Safficha by every method that we could devise, but all in vain; only one of them could get upon his legs, and that one did not stand two minutes till he kneeled down, and could never be raised afterwards. This the Arabs all declared to be the effect of cold; and yet Fahrenheit's thermometer, an hour before day, stood at 42°. Every way we turned ourselves death now stared us in the face. We had neither time nor strength to waste, nor provisions to support us. We then took the small skins that had contained our water, and filled them as far as we thought a

man could carry them with ease; but after all these shifts there was not enough to serve us three days, at which I had estimated our journey to Syene, which still however was uncertain. Finding, therefore, the camels would not rise, we killed two of them, and took as much flesh as might serve for the deficiency of bread, and from the stomach of each of the camels got about four gallons of water, which the Bishareen Arab managed with great dexterity.

. . . . . .

"In those caravans, of long course, which come from the Niger across the desert of Selima, it is said that each camel, by drinking, lays in a store of water that will support him for forty days. I will by no means be a voucher of this account, which carries with it an air of exaggeration; but fourteen or sixteen days, (six or seven,) it is well known, an ordinary camel will live, though he hath no fresh supply of water. When he chews the cud, or when he eats, you constantly see him throw from his repository mouthfuls of water to dilute his food; and Nature has contrived this vessel with such properties, that the water within never putrefies, nor turns unwholesome. It was indeed vapid, and of a blueish cast, but had neither taste nor smell."

The Arabian who lives independent in the midst of his solitudes, and who gives himself up to piracy, is early accustomed to the fatigues of travelling, to want of sleep, and to endure hunger, thirst, and heat. With the same view he instructs, rears, and

exercises his camels. A few days after their birth he folds their limbs under their belly, forces them to remain on the ground, and in this situation loads them with a pretty heavy weight, which is never removed but for the purpose of replacing a greater. Instead of allowing them to feed at pleasure, and to drink when they are dry, he begins with regulating their meals, and makes them gradually travel long journeys, diminishing at the same time the quantity of their aliment. When they acquire some strength they are trained up to the course. He excites their emulation by the example of horses, and in time renders them equally swift, and more robust. Thus, by means of the camel, an Arabian finds safety in the deserts; all the armies upon earth might be lost in pursuit of a flying squadron of this country, mounted upon their camels, and taking refuge in solitudes where nothing interposes to stop their flight, or to force them to wait the invader.

The largest kind of camel will carry a load of 1000 or 1200 pounds weight; but if the burthen imposed upon them happens to be too much for their strength they will utter the most lamentable cries, and continue lying on the ground till part of the load is taken off. Though perpetually oppressed, their fortitude is equal to their docility; and Denon assures us that these patient animals will go a whole day with a single feed of beans, which they chew for the remainder of the time, either on their journey or lying down on the scorching sand,

without showing the least symptom of discontent. They are seldom depressed, except when, travelling across the extensive deserts, their reservoir of water becomes exhausted, without any chance of a speedy supply: then indeed their sufferings are great, they become feeble, and their weakened limbs are scarcely able to support them on their journey. In this famished state they will scent the water at a great distance: thirst makes them double their pace, and they drink as much at once as will satisfy them for what they have suffered, and supply them for the time to come.

The camel that carries Mahomet's standard, which the caravans of pilgrims offer yearly on the tomb of their prophet, is exempted the rest of its life from all services. It is even pretended that this happy beast will rise again at the general resurrection, and enjoy the pleasures of paradise.

The callosities which appear on different parts of the camel's body are entirely owing to his lying down when he takes up his burthen. His feet are adapted for walking on sands, but he cannot support himself on moist or slippery ground. The general height of a full-sized camel is about six feet six inches to the top of the bunch. A European feels awkward upon first mounting one of these beasts, as he rises on his hind legs at first very briskly, and throws him first forward and then backward; and it is not till the fourth motion, when the animal is entirely erect, that the rider can find himself in equilibrio. Denon says, " It was enter-

taining to see us mount our beasts: none of us had been able to resist the first shake, and we each had to laugh at our companions.

"I had been apprehensive," continues Denon, "of the swinging pace of the camel; and the awkward prancing of the dromedary had made me fear that I should be thrown over his head: but I was soon undeceived. On being once fixed in the saddle, we had only to give way to the motion of the beast, and soon found that it was impossible to be more pleasantly mounted for a long journey, especially as no attention is necessary to guide the animal, except in making him deviate from his right direction, which very seldom happens in the desert during the march of a caravan. The camel very rarely trips, and never stumbles where the ground is dry. The pace of the dromedary is light; the opening of the angle of his long legs, and the flexible spring of his lean foot, render his trot easier, and at the same time full as swift as that of the most active horse."

The Count de Buffon says, that when all the qualities of this animal, and all the advantages derived from him, are considered under one point of view, he must be acknowledged the most useful creature that was ever subjected to the service of man. He may truly be called the genuine treasure of Asia; and is perhaps equal in utility to the horse, the ass, and the ox, when their powers are united. He carries as much as two mules, and is content to feed as coarsely as the ass. The flesh

of the young camel affords a nourishment equal to veal, and the females give a great quantity of wholesome milk, from which cheeses are made, that bear a high price, and are much esteemed among the Arabs. Their hair is of a very fine texture, and greatly in request, being manufactured into shawls, &c. Even the dung is highly serviceable, and makes excellent fuel after it has been exposed for a day or two in the sun. It then burns freely; and is of great use in the deserts, where not a tree is to be found, and where, for want of combustible materials, fire is as scarce as water.

That camels were brought into the field at a very early period is sufficiently proved by Xenophon, who, in his minute description of the famous battle of Thymbra, particularly mentions a considerable number of camels having two Arabian archers mounted upon each, who sat back to back, so that they were enabled to act offensively either advancing or retreating. These animals were formed by Cyrus into a squadron, and made to advance into the midst of the battle; where they fully answered the intended purpose by completely routing the Lydian cavalry.

It appears that this method of placing the soldiers upon the camels is still continued; as Mr. Bruce describes the arrival of a caravan at Syene, escorted by four hundred fighting men armed with short javelins, and mounted back to back.

THE BACTRIAN OR TWO-BUNCHED CAMEL.

We mention this variety merely to distinguish it from the dromedary, which has but one bunch, while this invariably has two: in every other respect the Bactrian camel is like the dromedary, and is as much employed by the Tartars as the single-bunched is by the Arabians. This is an extremely hardy animal, and will even bear the severe climate of Siberia, where numbers of them are to be found about the lake Baikal, though they are said to be far less than those which inhabit Western Tartary. Du Halde, in his History of China, has not forgotten the medical qualities of the camel, whose fat, or, as the people call it, *oil of bunches*, is celebrated for the cure of ulcers, consumptions, &c.

ETHIOPIAN HOG.

GENERIC CHARACTER.

Four cutting teeth in the upper jaw, and generally six in the lower.

Four tusks, two above and two below: the latter long, and extending out of the mouth.

Hoofs cloven.

SPECIFIC CHARACTER.

Sus æthiopicus. S. sacculo molli sub oculis. *Linn. Syst. Nat. Gmel.* 1. p. 220.

A soft bag under the eyes.

Aper æthiopicus. *Pallas Miscell. Zool.* p. 16. t. 2. *Spicil. Zool.* II. p. 3. t. 1. 11. p. 84. t. 5. f. 7.

African Wild Boar. *Deslandes Mart. Mem. Acad.* 5. 368. *Daniell's African Animals,* pl. 21.

Ethiopian Hog. *Sm. Buff.* v. 8. p. 281. pl. 297. *Penn. Hist. Quadr.* v. 1. p. 144. *Bew. Quadr.* p. 149. *Shaw Gen. Zool.* 2. pl. 223.

This hog is particularly remarkable for the form of his head, which gives him a monstrous aspect; for he has beneath each eye a hollow, formed of loose skin, soft and wrinkled, and under these a great lobe or wattle lying almost horizontally, and

placed so as to intercept the view of any thing immediately beneath it. He is likewise provided with most tremendous tusks in the upper jaw, about six inches long, and bending up towards his forehead. This animal inhabits the hottest parts of the interior of Africa, where he dwells in woods, digging for himself a habitation under ground, which he is said to do as expeditiously as a mole, by means of his callous snout. M.Vosmaer kept one of these animals in a cage, which he one day suffered to come out; and having left him alone for a few minutes, he found him, on his return, busy in digging the earth; where, notwithstanding the pavement was made of small bricks well cemented, he had already made a hole of an incredible size, with a view, as Vosmaer afterwards discovered, to reach a common sewer which passed below at a great depth. "I caused," says this gentleman, "his labour to be interrupted; and it was not without much trouble, and the assistance of several men, that we could overcome his resistance, and make him return to his cage."

These powerful animals are the dread of the Hottentots; for they will rush out from their retreat on a man, snap his legs in two, or rip open his belly with their tusks.

The chase of some old sows of this species, with their pigs, afforded Dr. Sparrman great amusement. The heads of the females became suddenly enlarged, and more shapeless than they were before. This momentary and wonderful change astonished him so

much the more, as, riding hard over a country full of bushes and pits, he had been prevented from giving sufficient attention to the manner in which it was brought about. The whole of the mystery, however, consisted in this: each of the old ones during its flight had taken a pig in its mouth: this also readily explained the reason of his surprise, upon finding that all the pigs which he had been chasing along with the old ones had vanished on a sudden. In this action we find a kind of unanimity among these animals, in which they resemble the tame species, and which they have in a greater degree than many others. It is likewise very astonishing, that the pigs should be carried about in this manner, between such large tusks as those of their mother, without being hurt, or crying out in the least.

A boar of this species, which was imported into Holland, is described as having become almost domestic; but it must be remarked that he was taken very young, and had been several months on board a vessel. However, his savage disposition so far prevailed, that, at one time, he conceived a resentment against his keeper, whom he wounded so desperately in the thigh that the man died next day.

TWO HORNED RHINOCEROS.

Designed by W. Daniell.

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RHINOCEROS.

GENERIC CHARACTER.

With one, sometimes two large horns on the nose.
Each hoof cloven into two parts.

RHINOCEROS UNICORNIS. *Linn. Syst. Nat. Gmel.* 1. p. 57.
RHINOCEROS. . . . . *Penn. Hist. Quadr.* 1. p. 154. *Edw. Av.* tab. 221. f. 2. *Sm. Buff.* 6. p. 92. pl. 167. *Bew. Quadr.* 156. *Shaw Gen. Zool.*

RHINOCEROS BICORNIS. *Linn. Syst. Nat. Gmel.* 1. p. 57.
TWO-HORNED RHINOCEROS. *Penn. Hist. Quadr.* 1. p. 150. pl. 29. *Bew. Hist. Quadr.* p. 160. *Shaw Gen. Zool.* pl. 60. *Daniell's Afr. An.* pl. 30.

NATURE, who has bestowed so many brilliant qualities on the elephant, has denied this clumsy animal the smallest share of intelligence. Rash and brutal, without sentiment or docility, he seems to exist merely to gratify a voracious appetite; and, being covered with an almost impenetrable skin, frequently commits the greatest devastations with impunity.

The rhinoceros is a native of Asia and Africa, and is usually found in those extensive forests that are frequented by the elephant and the lion. This animal is neither so useful nor so common as the elephant, the female producing but one at a time, and that at considerable intervals. The most singular part of the creature is the horn which grows upon the nose, and which is sometimes found above three feet long. This formidable weapon, rendered doubly so by its advantageous situation, is so much the terror of the savage tiger, that he generally chooses to attack any other animal in preference; being perfectly aware that, even if he escapes the horn, he will not be able to make any impression on the skin; which, like a thick, dark blanket, falling in folds over the body of the rhinoceros, presents a barrier which renders all the efforts of his enemy to penetrate it unavailing.

A pig-like head with two little dull eyes, a short thin tail with a few hard hairs at the extremity, and a huge uncouth body supported by four short, strong, and thick legs, will complete the general outline of this ugly animal.

It seems the opinion of Mr. Bruce, that the rhinoceros lives entirely upon trees, and that he does not spare the most thorny ones, but rather seems to be fond of them. Besides the trees capable of most resistance, there are in the vast forests of Africa, within the rains, trees of a softer consistence, and of a very succulent quality, which seem to be destined for his principal food. For the

purpose of gaining the higher branches of these, his upper lip is capable of being lengthened out, and (like the finger at the end of the elephant's trunk) serves to convey the food to his mouth. "With this lip, and the assistance of his tongue," says Mr. Bruce, "he pulls down the upper branches which have most leaves, and these he devours first: having stript the tree of its branches, he does not directly abandon it, but, placing his snout as low in the trunk as he finds his horn will enter, he rips up the body of the tree, and reduces it to thin pieces, like so many laths; and when he has thus prepared it, he embraces as much as he can of it in his monstrous jaws, and twists it round with as much ease as an ox would do a root of celery."

The rhinoceros which came to London in the year 1739 was sent from Bengal. Though not above two years of age, the expense of his food and journey amounted to near one thousand pounds sterling. He was fed with rice, sugar, and hay. He had daily seven pounds of rice mixed with three pounds of sugar, and divided into three portions. He had likewise both hay and green herbs, but greatly preferred the latter. He took large quantities of water at a time, was of a peaceable disposition, and allowed all parts of his body to be touched. When hungry, or provoked by any person, he became mischievous, and in both cases nothing appeased him but food. When enraged he sprung forward, and nimbly raised himself to a great height, at the same time pushing his head furiously

against the walls; which he performed with amazing quickness, notwithstanding his heavy aspect and unwieldy mass. "I often observed," says Dr. Parsons, "these movements produced by rage or impatience, especially in the mornings before his rice and sugar were brought to him. The vivacity and promptitude of his movements led me to think that he is altogether unconquerable, and that he could easily overtake any man who should offend him."

The roughness of the tongue of the rhinoceros seems to have been a matter of dispute among naturalists. By some it has been said to be so rough, that the animal can lick off the flesh from a man's bones, while others tell us that its softness equals that of the calf. Both these are in some measure true, but aggravated by the reporters. The tongue of the young rhinoceros is soft, and has apparently some furrows or wrinkles in it; but it has no prickles, nor rudiments of any, that are discernible. On the other hand, the tongue and inside of the upper lip of the old rhinoceros are very rough; and this appears to arise from the constant use he makes of these parts in seizing the branches of trees which have rough barks, particularly the acacia.

This animal is of a solitary and savage disposition; and such is his great strength, that, in combats with the elephant, he is said frequently to come off victorious. They never attack men unless they are provoked; when they become furious, and very

formidable, on account of their hard skin, which will resist even a musket-ball. The only penetrable parts of the body are the belly, the eyes, and about the ears. Hence the hunters, instead of attacking them face to face, follow them at a distance by the tracks of their feet, and watch till they lie down to sleep. We are informed that twenty-eight hunters, having assembled to attack a female rhinoceros, followed her at a distance for some days, detaching one or two of their number, from time to time, in order to reconnoitre her situation: by these means they surprised her when asleep, and silently approached so near, that the whole twenty-eight muskets were discharged at once into the lower part of her belly.

Mr. Bingley, in his Animal Biography, has given an interesting account of the rhinoceros which was brought into this country in the year 1790, in the Melville Castle East Indiaman. This creature was sent as a present to Mr. Dundas, who, not wishing to have the trouble of keeping him, gave the animal away. He was afterwards purchased by Mr. Pidcock for seven hundred pounds, and exhibited in Exeter Change.

The animal when first brought to England was about five years old. He was tolerably tractable, would at the command of his keeper walk about the room, and exhibit himself to the numerous spectators who came to visit him, and even allow them to pat him on the back and sides. His daily allowance was twenty-eight pounds weight of clover,

about the same weight of ship biscuit, and a vast quantity of greens. Five pails of water, twice or thrice a day, served him to dilute his food. A vessel that contained about three pails was given him at a time, which was filled up as the animal drank it; and it was observed that he never ended his draught till the water was exhausted. Sweet wines were so much to his taste, that he would drink three or four bottles in the course of a few hours. When any person came with fruit or other favourite food in his hand, he appeared anxious to have it given him, and then exerted his voice, which was not unlike the bleating of a calf.

This rhinoceros died of an inflammation, occasioned by accidentally slipping the joint of one of his fore legs; and it is a singular fact, that the incisions made through his hard skin, on the first attempts to recover the animal, were invariably found to be healed in the course of twenty-four hours. He died in a caravan at Corsham, near Portsmouth, and the stench was so intolerable that the mayor was obliged to order the body to be immediately buried. This was accordingly done on South Sea common: but about a fortnight afterwards it was dug up again, to preserve the skin and some of the most valuable of the bones. It appears that the stench was so insufferable, that it was with the utmost difficulty the persons employed could proceed in their operations.

THE TWO-HORNED RHINOCEROS.

THERE is a striking difference between the Asiatic and the African rhinoceros. The former, with its rough and almost impenetrable hide, bids defiance to the attack of its enemies; whilst the skin of the latter, or two-horned rhinoceros, is comparatively smooth, is capable of being pierced with a lance, and has none of the folds so remarkable in the one-horned species. It is, however, thick enough for the Dutch boors in the vicinity of the Cape to cut out of it their largest *sambocs*, or horse rods, which, if well prepared, are better than those of the hippopotamus. The head of this animal is very remarkable: not only the horns sit upon the nose, but the eyes also are placed in it, being directly under the root of the larger horn; and they are so minute, that one would suppose them of little use to so huge a creature. But Nature, always provident, has remedied this inconvenience by placing them in projecting sockets, in which they turn in all directions, like those of the little chameleon. Mr. Barrow, to whose excellent Travels in Southern Africa we are indebted for much useful information, says that he has not seen any figure that conveys an accurate representation of this animal, except in two varieties, by Mr. Daniell, who has made excellent drawings of them; in one of which the upper horn is almost as large as the lower, and is pointed towards it: the other figure,

from which our plate was taken, has not hitherto been published. There is a circumstance worthy of remark respecting these horns. When the animal is browsing and undisturbed, the horns remain loose upon the nose; but the moment he is alarmed they become perfectly stiff, and ready to act in the most offensive manner. Sparrman, when in Africa, watched the arrival of those and other animals at a muddy water, whither the wild beasts resort to quench their thirst, and some to indulge, in that hot climate, in rolling in the mud. In that spot he shot two rhinoceroses; one was so large that the united force of five men could not turn it. The lesser he measured: its length was eleven feet and a half; the girth twelve; and the height between six and seven.

Mr. Bruce informs us, " that when pursued, and in fear, the rhinoceros possesses an astonishing degree of swiftness, considering his size, the apparent unwieldiness of his body, his great weight before, and the shortness of his legs. He is long, and has a kind of trot, which after a few minutes increases in a great proportion, and takes in a great distance. It is not true, that on a plain he beats the horse in swiftness. I have passed him with ease, and seen many worse mounted do the same; and though it is certainly true, that a horse can very seldom come up with him, this is owing to his cunning, but not his swiftness. He passes constantly from wood to wood, and forces himself into the thickest part of them. The dry trees are broken down as with a

cannon shot, and fall about him in all directions. Others that are more pliable, greener, or fuller of sap, are bent back by his weight and the velocity of his motion; and, after he has passed, restoring themselves like a green branch to their natural position, they sweep the incautious pursuer and his horse from the ground, and dash them in pieces against the surrounding trees."

This gentleman proceeds to say, that the rhinoceros seldom turns his head, and therefore sees nothing but what is before him; that it is to this he owes his death, from which he can never escape, if there is sufficient room for the horse to get before him. "His pride and fury then make him lay aside all thoughts of escaping but by victory over his enemy. He stands for a moment at bay, then at a start runs straight forward at the horse, like the wild boar, whom in his manner of action he very much resembles. The horse easily avoids him, by turning short aside, and this is the fatal instant: the naked man, with his sword, drops from behind the principal horseman, and, unseen by the rhinoceros, who is seeking his enemy, the horse, gives him a stroke across the tendon of the heel, which renders him incapable of further flight or resistance."

The method of hunting the rhinoceros in Abyssinia is thus described by Mr. Bruce: "The next morning we were on horseback by the dawn of day, in search of the rhinoceros, many of which we had heard make a very deep groan and cry as

the morning approached: several of the agageers (or hunters) then joined us; and after we had searched about an hour in the very thickest part of the wood, one of them rushed out with great violence, crossing the plain towards a wood of canes that was about two miles distant. But though he ran, or rather trotted, with surprising speed, considering his bulk, he was in a very little time transfixed with thirty or forty javelins; which so confounded him, that he left his purpose of going to the wood, and ran into a deep hole, ditch, or ravine, a *cul de sac*, without outlet, breaking above a dozen of javelins as he entered. Here we thought he was caught as in a trap; for he had scarce room to turn; when a servant, who had a gun, standing directly over him, fired at his head, and the animal fell immediately, to all appearance dead. All those on foot now jumped in with their knives to cut him up; and they had scarce begun, when the animal recovered so far as to rise upon his knees: happy then was the man who escaped first; and had not one of the agageers, who was himself engaged in the ravine, cut the sinew of the hind leg as he was retreating, there would have been a very sorrowful account of the foot hunters that day.

" After having dispatched him, I was curious to see what wound the shot had given, which had operated so violently upon so huge an animal; and I doubted not it was the brain. But it had only struck him on the point of the foremost horn, of which it had carried off above an inch; and this

occasioned a concussion that had stunned him for a minute, till the bleeding had recovered him."

The rhinoceros, like the hog, loves to wallow in the mire, where he enjoys the rubbing himself so much, and groans and grunts so loud, that he is heard at a considerable distance. The evening is the time he usually indulges himself in this pleasure; and the enjoyment he receives from it, together with the approaching darkness of the night, deprives him of his usual vigilance and attention. The hunters, guided by his noise, steal secretly upon him, and, while lying on the ground, kill him with their javelins, by striking him in the belly; where the wound is mortal.

The quantity of water which this creature requires to satisfy its thirst is so great, that, according to our Abyssinian traveller, no country but the Shangalla, deluged with six months' rain, and full of large deep basins, made in the solid rock, and shaded by dark woods from evaporation, or watered by large and deep rivers, can supply the vast draughts of this monstrous animal. But it is not for drinking alone that he frequents wet and marshy places: large, fierce, and strong as he is, he must submit to defend himself against the weakest of adversaries. The fly, (a species of œstrus,) that unremitting persecutor of every animal that lives in the *black earth*, does not spare the rhinoceros, nor is afraid of his fierceness. It attacks him in the same manner as it does the camel, and would as easily subdue him, were it not for a stratagem prac-

tised by him for his preservation. The time of the fly being the rainy season, the whole *black earth* turns into mire. In the night, when the fly is at rest, he chooses a convenient place, and there, rolling himself in the mud, clothes himself with a kind of case, which defends him against his adversary the following day. The wrinkles and plaits of his skin serve to keep this muddy plaster firm upon him, all but about his hips, shoulders, and legs, where it cracks and falls off by motion, leaving him exposed in those places to the attacks of the fly. The itching and pain which follow, occasion him to rub himself in those parts against the roughest trees; and it is the opinion of Mr. Bruce, that this is at least one cause of the pustules and tubercles which we see upon these places, both on the elephant and rhinoceros.

The flesh of the rhinoceros is reckoned excellent by the people of Abyssinia, and is eaten with great greediness by all the inhabitants of the low country and Atbara. The most delicate part about him is supposed to be the soles of his feet, which are soft like those of a camel, and of a gristly substance; the rest of the flesh is not unlike that of the hog, but much coarser. The only hair about the animal is at the tip of its tail; ten of these hairs fastened side by side at the distance of half an inch from each other, in the figure of a man's hand, make a whip, which, Mr. Bruce assures us, will bring the blood at every stroke.

Perhaps some apology may be necessary for quot-

ing an author who has committed himself so palpably in his figure of the two-horned rhinoceros; yet, as the account of the animal which he has given us has been partly confirmed, we thought it our duty to avail ourselves of the information it affords.

This rare coin, on which the representation of the two-horned rhinoceros is impressed, has the following legend on the reverse: IMP. DOMIT. AVG. GERM. with the letters S. C. (reversed by the engraver), which should be read, Imperator Domitianus. Augustus Germanicus. Senatus Consulto.; implying that the coin was struck during the government of the emperor Domitian, by the decree or authority of the senate, which had hitherto retained the republican power of presiding over the coinage of brass or copper.

The coin is of the smallest size in which Roman copper coins of the same æra are usually found, and the figure of the animal is stamped upon it in a clear and distinct manner, so that each of the horns is accurately marked. It is indeed improbable, that a rhinoceros without such a distinction would have been so rare an animal in a Roman amphitheatre, as to be made the subject of a coin. There

is, however, an additional circumstance which attaches to the coin a curious confirmation, and great classical importance.

The exhibition of the two-horned rhinoceros to the Roman people, probably of the very same animal represented on the coin, is particularly described in one of the epigrams attributed to Martial, who lived in the reigns of Titus and Domitian.

The following are the lines:

Sollicitant pavidi dum rhinocerota magistri,
Seque diu magnæ colligit ira feræ.
Desperabantur promissi prælia Martis:
Sed tamen is rediit cognitus antè furor.
Namque gravem *gemino cornu* sic extulit ursum,
Jactat ut impositas Taurus in astra pilas.

By this description it appears that a combat between a rhinoceros and a bear was intended, but that it was very difficult to irritate the more unwieldy animal, so as to make him display his usual ferocity: at length, however, he tossed the bear from his *double horn*, with as much facility as a bull tosses to the sky the bundles placed for the purpose of enraging him.

Thus far the coin and the epigram perfectly agree as to the existence of the double horn; but unfortunately commentators and antiquaries would not be convinced that a rhinoceros could have more than one horn, and have at once displayed their sagacity and incredulity in their explanations on the subject.

Hence we find a similar coin engraved in the second volume of Cooke's Medallic History of Rome, where the animal is misrepresented, and particularly the horns, which appear like tusks bending in different directions. After quoting the lines of Martial, Mr. Cooke observes,

that it is the opinion of Bochart that the disputed line should be read thus:

> Namque gravi geminum cornu sic extulit ursum:

by which alteration we should have two bears instead of one: but Mr. Cooke proposes to omit only one letter, the s in the word ursum, by which means he turns the bear into a wild bull; and as it is perfectly natural that the wild bull, or urus, should have two horns, he translates the line thus:

> Struck with amazement, we beheld upborne
> The buffal dreadful with his double horn.

If Cooke had seen the coin itself, or had consulted that book so useful to a medallist, the catalogue of Dr. Mead's coins, he would not have deprived the epigram of its original and curious information.

HIPPOPOTAMUS.

GENERIC CHARACTER.

Four cuting teeth, and two tusks in each jaw.
Hoof divided into four parts.

SPECIFIC CHARACTER.

HIPPOPOTAMUS AMPHIBIUS.	Pedibus quadrilobis. *Linn. Syst. Nat. Gmel.* 1. p. 214. Has four rounded hoofs on each foot.
HIPPOPOTAMUS.	*Sm. Buff.* v. 6. p. 277. pl. 187. *Penn. Hist. Quadr.* 1. p. 157. pl. 31 and 32. *Bewick's Quadr. Shaw Gen. Zool.* 2. pl. 219. *Daniell's Af. An.* pl. 12.

IT appears extraordinary that Providence should have destined this huge animal to inhabit an element where it cannot exist, since it eats nothing that the rivers afford. During the night, the hippopotamus leaves the waters to graze, and sometimes goes as far as six miles from the banks, either in search of food or of another river; frequently doing great damage to the sugar-canes and plantations of rice and millet. This unwieldy creature moves but

HIPPOPOTAMUS.

Designed by W. Daniell.

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slowly, till he gets to the edge of the water; when, if alarmed, he immediately plunges to the bottom, and may be seen walking there with great ease. The hippopotamus, however, cannot remain long without returning to the surface to breathe; where, if undisturbed, he will continue for a considerable time with his monstrous head above the water. When Mr. Barrow, in his journey into the interior of Southern Africa, reached the mouth of the Great Fish river, he saw, towards the evening, a vast number of hippopotami, or sea cows, as they are called by the Dutch, with their heads above the surface. Several of the paths of these animals lead from various parts of the river to a spring of fresh water about a mile distant. To this spring they go in the night-time to drink; the water of the river, for a considerable distance from the mouth, being salt.

The enormous head of this creature is sufficiently terrific, without considering his mouth, which, when extended, exposes a monstrous cavity furnished with about thirty-six large teeth. The tusks, of which there are two in each jaw, sometimes weigh six pounds nine ounces apiece, and are twenty-seven inches long. The eyes of the hippopotamus, like those of the elephant and rhinoceros, are small in proportion to his bulk. The skin is so hard, when dried, that the inhabitants of the interior of Africa are said to make shields of it that will repel a musket-ball; even in its recent state it

is so thick as to be almost impenetrable. The tail is about a foot long, taper, depressed, and naked; and, notwithstanding it is an amphibious animal, the hoofs are unconnected by membranes.

We learn from Mr. Pennant, that this animal is second in size only to the elephant; that the length of the male has been found to be seventeen feet; the legs near three; the head above three and a half; his girth near nine; that twelve oxen have been found necessary to draw one ashore, which had been shot in a river above the Cape; and, that his hide is a load for a camel.

Although the hippopotamus inhabits Africa, from the Niger to the Berg river, many miles north of the Cape of Good Hope; yet he is not at present to be met with in any of the African rivers which run into the Mediterranean, except the Nile; and even there only in Upper Egypt, and in the fens and lakes of Ethiopia which that river passes through. However, they were formerly seen below the cataracts; for, in the year 1603, Frederico Zerenghi, a surgeon of Narni in Italy, printed at Naples the history of two hippopotami, which he had taken alive in a great ditch dug on purpose in the neighbourhood of the Nile, near Damietta.

" With a view," says Zerenghi, " of obtaining a hippopotamus, I stationed men upon the Nile, who, having seen two of these animals go out of the river, made a large ditch in the way through which they passed, and covered it with thin planks, earth,

and herbage. In the evening, when returning to the river, they both fell into the ditch. I was immediately informed of the event, and hastened to the place along with my janissary. We killed both the animals by pouring three shot into each of their heads with a large arquebuse. They almost instantly expired, after uttering a cry which had more resemblance to the bellowing of a buffalo than to the neighing of a horse. This exploit was performed on the 20th day of July, 1600. The following day they were drawn out of the ditch, and carefully skinned. The one was a male, and the other a female. I caused these skins to be salted, and stuffed with the leaves of the sugar-cane, in order to transport them to Cairo; where they were salted a second time with more attention and convenience. Each skin required 400 pounds of salt."

This manner of taking the hippopotamus is occasionally practised in the Caffre country; but the usual gait of this animal, when not disturbed, is so cautious and slow, that he generally finds out the snare and avoids it. The more certain method of destroying him is to watch at night behind a bush close to his path, and as he passes to wound him in the tendons of the knee joint, by which he is immediately rendered lame, and unable to escape from the numerous *hassagais* (spears) with which he is assailed by the natives. Hasselquist gives an account of another method of taking them (the truth

of which, however, we shall not pretend to warrant). He tells us that the natives lay a great heap of pease in the places which the hippopotamus frequents: he eats greedily; then growing thirsty, drinks immoderately; the pease in his belly swell, the animal bursts, and is found dead.

When the hippopotamus is in danger, he seems to place all his dependence on the water; where, if he happens to be wounded, he becomes a very savage and formidable enemy. One of these animals has been known (if we may credit Dampier) to open his jaws, and, seizing a boat between his teeth, at once to bite and sink it to the bottom.

When Dr. Thunberg visited Caffraria in the year 1773, he met with an elderly man (a keen sportsman) who had made long journeys at various times into the interior part of the country. This man related to him, upon his honour, several circumstances to which he had been an eye witness, and which a traveller is very seldom fortunate enough to have himself an opportunity of seeing. Once, for instance, when he was out a-hunting, having observed a sea-cow (*hippopotamus amphibius*) that had gone a little way up from a neighbouring river in order to calve; he, with his suite, lay still and concealed in the bushes till the calf made its appearance, when one of them fired, and shot the mother dead on the spot. The Hottentots, who imagined that after this they could catch the calf alive, immediately ran out of their hiding-places to

lay hold of it; but though there were several of them, the new-born calf escaped, and made the best of its way to the river.

This Roman coin, on one side of which appears the portrait of Marcia Otacilia Severa, the wife of the emperor Philip, and on the reverse the figure of the hippopotamus, was struck on the occasion of Philip's celebration of the Secular Games, when Rome was supposed to have attained the period of a thousand years from her foundation. The coin itself is of brass, exactly the size of the figure, and on the reverse are the letters usual on Roman brass and copper coins. S. C. Senatus Consulto, and the legend SAECVLARES AVGG. by which are to be understood the words Ludi Sæculares Augustorum, or the Secular Games of the Augusti, celebrated by Philip and by his son, whom he had appointed his associate in the empire.

On the side of the coin which shows the portrait of the empress is the following legend: MARCIA OTACIL SEVERA AVG.

The legend on the reverse of the coin shows beyond

doubt that the hippopotamus was exhibited to the Roman people on the celebration of the Secular Games, and was considered by them as a rare and curious animal.

We have thought proper to give the legend as it ought to appear on the coin in its perfect state: our specimen wants some of the letters; and of those which remain, a few, from their obscurity, have been mistaken by the engraver. In other respects the figure is a perfect fac simile of the original coin.

ELEPHANT.

Designed by W. Daniell.

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ELEPHANT.

GENERIC CHARACTER.

No cutting teeth in either jaw; two long tusks; a flexible, cartilaginous proboscis.
Feet round, terminated by five small hoofs.

ELEPHAS MAXIMUS. *Linn. Syst. Nat. Gmel.* i. p. 58.
GREAT ELEPHANT. *Penn. Hist. Quadr.* 1. p. 165. n. 84. pl. 34. *Sm. Buff.* 6. p. 1. pl. 166. *Bewick Quad.* p. 166. *Shaw Gen. Zool.* pl. 63. 64.

WHEN we contemplate an animal whose size and strength are so much superior to the rest of the creation; when we consider this animal, notwithstanding his enormous bulk, moving in any direction at the command of his keeper; and when we are convinced, not only on the authority of the best writers, but on the evidence of our own senses, that this animal possesses intellects of a superior nature to any other brute! we cannot help being surprised that he, who is so well able to remain his own master, should so readily become the servant of another.

In the interior parts of Africa, where immense

forests line the sides of rivers, large herds of elephants are to be met with in their wildest state; the savage inhabitants of that dreary country being more careful to avoid their fury than anxious to render them useful. In the civilized parts of Asia, on the contrary, the people, well aware of the many services this creature can afford them, spare no pains to domesticate him; and have generally the satisfaction to find their endeavours repaid by an animal, who becomes as tractable as he is grateful.

The opinion of Aristotle, that the female elephant goes two years with young, has lately been confirmed by the intelligent Mr. Corse, who informs us that an elephant brought forth a young one twenty-one months and three days after she was taken: therefore she must have been pregnant at that time, though it was too early to be perceived. The young one, a male, was born October 16, 1789, and was thirty-five inches high. It may be proper to observe in this place, that young elephants suck constantly with their mouths, and never with their trunks, as Buffon has asserted; a conclusion he made merely from conjecture. "I have seen young ones," says Mr. Corse, "from one day to three years old, sucking their dams; but never saw them use their trunks, except to press the breast, which by natural instinct they seemed to know would make the milk flow more readily."

Elephants are generally measured at the shoulder,

and the usual height of the male is from eight to ten feet: of the female from seven to eight. This animal has very large ears, which, like the human, lie flat upon his head; nevertheless he can move them backwards and forwards at pleasure. His eyes, which are very small in proportion to his bulk, are lively, brilliant, and capable of great expression. He turns them slowly and with gentleness towards his master; and when he speaks, the elephant regards him with mildness and attention. The trunk, which is about eight feet long, and four feet in circumference near the mouth, is so very flexible, that the animal can move it in all directions, and generally rolls it up between his tusks when he engages with an enemy. The extremity of the trunk terminates in a protuberance which stretches out on the upper side in the form of a finger, by means of which the elephant can pick up whatever he pleases from the ground. This appendix, or finger, is situated on the superior part of the border that surrounds the extremity of the trunk, in the middle of which there is a concavity in the form of a cup, and in the bottom of the cup are the apertures of the two common canals of smelling and of respiration. The first or milk tusks never grow to any size, but are shed between the first and second year, when not two inches in length. The permanent tusks of the female are very small in comparison with those of the male, and do not take their rise so deep in the jaw; they

use them as weapons of offence in the same manner as the male, that is, by putting their head above another elephant, and pressing their tusks down into the animal. These tusks are never shed, and sometimes grow to a large size. In Bengal they seldom exceed seventy-two pounds; but those brought from other parts of India occasionally weigh near 150 pounds each. As the tusks of this animal are apt to split, the natives frequently arm them with rings of brass. The short foot of the elephant is divided into five toes, which are so covered with the skin as not to be visible: we only see the nails, the number of which varies, though that of the toes always remains the same. The tail is generally from three to four feet in length. It is thin, tapering, and furnished at the extremity with a tuft of thick hairs, of a black, glossy, solid, horny substance. This tuft of hair is greatly esteemed as an ornament by the negro women. An elephant's tail is sometimes sold for two or three slaves; and the negroes often hazard their lives to obtain a tail of this kind, as it must be cut off with a single blow from the live animal; without which, superstition allows it no virtue. The colour of the skin is dusky, with a few scattered hairs on it; and, where it is not callous, is extremely sensible. In the fissures and other places, where it is neither dry nor hardened, the elephant feels the stinging of flies in such a lively manner that he becomes very uneasy; and when other means to

drive them off have failed, he has been seen to collect dust with his trunk, and cover all the sensible parts of his skin with it.

Wild elephants were caught and trained at an early period; since we find Arrian, who flourished about the 140th year of Christ, giving us the following account of the manner of taking elephants in India. The Indians enclose a large spot of ground, with a trench about twenty feet wide, and fifteen high, to which there is access but in one part, and this is a bridge, and is covered with turf; in order that these animals, who are very subtle, may not suspect what is intended. Of the earth that is dug out of the trench, a kind of wall is raised, on the other side of which a little kind of chamber is made, where people conceal themselves in order to watch these animals, and its entrance is very small. In this enclosure two or three tame female elephants are set. The instant the wild elephants see or smell them, they run and whirl about so much, that at last they enter the enclosure; upon which the bridge is immediately broken down, and the people upon the watch fly to the neighbouring villages for help. After they have been broken for a few days by hunger and thirst, people enter the enclosure upon tame elephants, and with these they attack them. As the wild ones are by this time very much weakened, it is impossible for them to make a long resistance. After throwing them on the ground, men get upon their backs, having first made a deep wound round

their necks, about which they throw a rope, in order to put them to great pain in case they attempt to stir. Being tamed in this manner, they suffer themselves to be led quietly to the houses with the rest, where they are fed with grass and green corn, and tamed insensibly by blows and hunger, till such time as they obey readily their master's voice, and perfectly understand his language.

The authority of Arrian is not to be questioned, and the account which he has given us is not more valuable for its antiquity than the circumstantial manner in which it is related.

After having noticed the earliest manner of catching wild elephants, we shall proceed to relate the method at present used in India, from an interesting paper by John Corse, Esq. inserted in the Asiatic Researches.

" In the month of November, when the weather has become cool, and the swamps and marshes, formed by the rains in the five preceding months, are lessened, and some of them dried up, a number of people are employed to go in quest of elephants.

" At this season the males come from the recesses of the forest into the borders and outskirts, whence they make nocturnal excursions into the plains in search of food, and where they often destroy the labours of the husbandman, by devouring and trampling down the rice, sugar-canes, &c. that they meet with. A herd or drove of elephants,

from what I can learn, has never been seen to leave the woods; some of the largest males often stray to a considerable distance, but the young ones always remain in the forest, under the protection of the *palmai*, or leader of the herd, and of the larger elephants. The *goondahs*, or large males, come out singly, or in small parties, sometimes in the morning, but commonly in the evening, and they continue to feed all night upon the long grass that grows amidst the swamps and marshes, and of which they are extremely fond. As often however as they have an opportunity, they commit depredations on the rice-fields, sugar-canes, and plantain-trees, that are near; which obliges the farmers to keep regular watch, under a small cover, erected on the top of a few long bamboos, about fourteen feet from the ground: and this precaution is necessary to protect them from the tigers, with which this province abounds. From this lofty station the alarm is soon communicated from one watchman to another, and from them to the neighbouring villages, by means of a rattle with which each is provided. With their shouts and cries the elephants are generally scared, and retire. It sometimes however happens that the males advance even to the villages, overturn the houses, and kill those who unfortunately come in their way, unless they have had time to light a number of fires: this element seems to be the most dreaded by wild elephants; and a few lighted wisps of straw or grass seldom fail to stop their progress. To secure one

of the males, a very different method is employed from that which is taken to secure a herd: the former is taken by *koomkees*, or female elephants trained for the purpose; whereas the latter is driven into a strong enclosure called a *heddah*.

" As the hunters know the places where the elephants come out to feed, they advance towards them in the evening with four *koomkees*, which is the number of which each hunting party consists: when the nights are dark, (and these are the most favourable for their purpose,) the male elephants are discovered by the noise they make in cleaning their food, by whisking and striking it against their fore legs, and by moon-light they can see them at some distance.

" As soon as they have determined on the *goondah* they mean to secure, three of the *koomkees* are conducted silently and slowly by their drivers, at a moderate distance from each other, near to the place where they are feeding: the *koomkees* advance very cautiously, feeding as they go along, and appear like wild elephants that had strayed from the jungle. When the male perceives them approaching, if he takes the alarm, and is viciously inclined, he beats the ground with his trunk and makes a noise, showing evident marks of his displeasure, and that he will not allow them to approach nearer; and if they persist, he will immediately attack them with his tusks: for which reason they take care to retreat in good time. But should he be amorously disposed, which is generally the case,

he allows the females to approach, and sometimes even advances to meet them."

When from these appearances the drivers judge that he will become their prize, they conduct two of the females, one on each side close to him, and make them move backwards, and press gently with their posteriors against his neck and shoulders; the third female then comes up and places herself directly across his tail: in this situation, so far from suspecting any design against his liberty, he begins to toy with the females and caress them with his trunk. While thus engaged the fourth female is brought near, with ropes and proper assistants, who immediately get under the belly of the third female, and put a slight cord (the *chilkah*) round his hind legs: should he move, it is easily broken; in which case, if he takes no notice of this slight confinement, nor appears suspicious of what is going forward, the hunters then proceed to tie his legs with a strong cord (called *bunda*), which is passed alternately by means of a forked stick and a kind of hook, from one leg to the other, forming a figure of 8; and as these ropes are short, for the convenience of being more readily put round his legs, six or eight are generally employed, and they are made fast by another cord (the *dagbearee*), which is passed a few turns perpendicularly between his legs, where the folds of the *bundahs* intersect each other. A strong cable (the *phand*) with a running noose, sixty cubits long, is next put round each hind leg, immediately above the bundahs, and again above

them six or eight additional bundahs, according to the size of the elephant, are made fast, in the same manner as the others were: the putting on these ropes generally takes up about twenty minutes, during which the utmost silence is observed, and the drivers, who keep flat upon the necks of the females, are covered with dark-coloured cloths, which serve to keep them warm, and at the same time do not attract the notice of the elephant; for he is so secured by the pressure of a *koomkee* on each side and one behind, that he can hardly turn himself, or see any of the people, who always keep snug under the belly of the third female, that stands across his tail, and which serves both to keep him steady, and prevent his kicking any of the assistants who are employed in securing him: but in general he is so taken up with his decoyers, as to attend very little to any thing else. In case of accidents, however, should the *goondah* break loose, the people upon the first alarm can always mount on the backs of the tame elephants, by a rope that hangs ready for the purpose, and thus get out of his reach. When his hind legs are properly secured they leave him to himself, and retire to a small distance. As soon as the *koomkees* leave him, he attempts to follow; but finding his legs tied, he is roused to a proper sense of his situation, and retreats towards the jungle: the drivers follow at a moderate distance from him on the tame elephants, accompanied by a number of people that had been previously sent for, and who, as soon as the *goondah* passes near a stout

tree, make a few turns of the *phands*, or long cables that are trailing behind him, around his trunk: his progress being thus stopped, he becomes furious, and exerts his utmost force to disengage himself; nor will he then allow any of the *koomkees* to come near him, but is outrageous for some time, falling down and goring the earth with his tusks. If by these exertions the *phands* are once broken, which sometimes is effected, and he escapes into a thick jungle, the drivers dare not advance for fear of the other wild elephants, and are therefore obliged to leave him to his fate; and in this hampered situation, it is said, he is even ungenerously attacked by the other wild elephants. As the cables are very strong, and seldom give way; when he has exhausted himself by his exertions, the *koomkees* are again brought near, and take their former positions; viz. one on each side, and the other behind. After getting him nearer the tree, the people carry the ends of the long cables around his legs, then back and about the trunk of the tree, making, if they can, two or three turns, so as to prevent even the possibility of his escape. It would be almost impossible to secure an elephant in any other manner, as he would tear up any stake that could at the time be driven into the ground, and even the noise of doing it would frighten him: for these reasons, as far as I can learn, nothing less than a strong tree is ever trusted to by the hunters. For still further security, as well as to confine him from moving to either side, his fore-legs are tied exactly in the same

manner as the hind-legs were, and the *phands* are made fast, one on each side, to trees, or stakes driven deep into the earth. During the process of tying both the hind- and fore-legs, the fourth *koomkee* gives assistance where necessary, and the people employed cautiously avoid going within reach of his trunk. When he attempts to seize them, they retreat to the opposite side of the *koomkees*, and get on them, if necessary, by means of the rope above mentioned, which hangs ready for them to lay hold of. Although by these means he is perfectly secured, and cannot escape; yet, as it would be both unsafe and inconvenient to allow him to remain at the verge of the jungle, a number of additional ropes are afterwards put on, as will be mentioned, for the purpose of conducting him to a proper station. When the *goondah* has become more settled, and eaten a little food, with which he is supplied as soon as he is taken, the *koomkees* are again brought near, and a strong rope (*phara*) is then put twice round his body, close to his fore-legs, like a girth, and tied behind his shoulder; then the long end is carried back close to his rump, and there fastened, after a couple of turns more have been made round his body. Another cord is next fastened to the *phara*, and from thence carried under his tail, like a crupper, and brought forward and fastened by a turn or two to each of the *pharas* or girths, by which the whole is connected, and each turn of these cords serves to keep the rest in their places. After this a strong rope (the *tooman*) is put round

his buttocks, and made fast on each side to the girth and crupper, so as to confine the motion of his thighs, and prevent his taking a full step. These smaller ropes being properly adjusted, a couple of large cables (the *dools*) with running nooses are put around his neck; and after being drawn moderately tight, the nooses are secured from running closer, and then tied to the ropes on each side, forming the girth and crupper already mentioned; and thus all these ropes are connected and kept in their proper places, without any risk of the nooses of the *dools* becoming tight, so as to endanger the life of the elephant in his exertions to free himself. The ends of the secables are made fast to two *koomkees*, one on each side of the *goondah*, by a couple of turns round the belly, close to the shoulder, like a girth, where a turn is made; and it is then carried across the chest and fastened to the girth on the opposite side. Every thing being now ready, and a passage cleared from the jungle, all the ropes are taken from his legs, and only the *tooman* remains round his buttocks to confine the motion of his hind-legs; the *koomkees* pull him forwards by the *dools*, and the people from behind urge him on. Instead of advancing in the direction they wish, he attempts to retreat further into the jungle; he exerts all his force, falls down, and tears the earth with his tusks, screaming and groaning, and by his violent exertions often hurts and bruises himself very much; and instances happen of their surviving these violent exertions only a few hours, or at most

a few days. In general, however, they soon become reconciled to their fate, will eat immediately after they are taken, and, if necessary, may be conducted from the verge of the jungle as soon as a passage is cleared. When the elephant is brought to his proper station and made fast, he is treated with a mixture of severity and gentleness, and in a few months (if docile) he becomes tractable, and appears perfectly satisfied with his lot. It appears somewhat extraordinary, that though the *goondah* uses his utmost force to disengage himself when taken, and would kill any person coming within his reach, yet he never, or at least seldom, attempts to hurt the females that have ensnared him, but on the contrary seems pleased, (as often as they are brought near, in order to adjust his harnessing, or move and slacken those ropes which gall him,) soothed, and comforted, as it were, for the loss of his liberty. All the elephants, soon after they are taken, are led out occasionally for exercise by the *koomkees*, which attend for that purpose.

" Having now related, partly from my own knowledge, and partly from comparing the accounts given by different people employed in this business, the manner in which the male elephants, called *goondahs*, are secured, I shall next, entirely from my own knowledge, describe the methods I have seen employed for securing a herd of wild elephants. Female elephants are never taken singly, but always in the herd, which consists of young and old of both sexes. This noble, docile, and use-

ful animal seems naturally of a social disposition, as a herd in general consists of from forty to one hundred, and is conducted under the direction of one of the largest and oldest females, called the *palmai*, and one of the largest males. When a herd is discovered, about five hundred people are employed to surround it; who divide themselves into small parties, called *chokeys*, consisting generally of one driver and two coolies, at the distance of twenty or thirty yards from each other, and form an irregular circle, in which the elephants are enclosed: each party lights a fire, and clears a footpath to the station that is next him; by which a regular communication is soon formed through the whole circumference from one to the other. By this path reinforcements can immediately be brought to any place where an alarm is given; and it is also necessary for the superintendants, who are always going round, to see that the people are alert upon their posts. The first circle (the *dawkee*) being thus formed, the remaining part of the day and night is spent in keeping watch by turns, or in cooking for themselves and companions. Early next morning one man is detached from each station, to form another circle in that direction where they wish the elephants to advance. When it is finished, the people stationed nearest to the new circle put out their fires, and file off to the right and left to form the advanced party, thus leaving an opening for the herd to advance through; and by this movement both the old and new circle are joined, and

form an oblong. The people from behind now begin shouting, and making a noise with their rattles, *tomtoms*, &c. to cause the elephants to advance; and as soon as they are got within the new circle the people close up, take their proper stations, and pass the remaining part of the day and night as before. In the morning the same process is repeated; and in this manner the herd advances slowly, in that direction where they find themselves least incommoded by the noise and clamour of the hunters, feeding as they go along upon the branches of trees, leaves of bamboos, &c. which come in their way. If they suspected any snare, they could easily break through the circle; but this inoffensive animal, going merely in quest of food, and not seeing any of the people who surround him, and who are concealed by the thick jungle, advances without suspicion, and appears only to avoid being pestered by their noise and din. As fire is the thing elephants seem most afraid of in their wild state, and will seldom venture near it, the hunters always have a number of fires lighted, and particularly at night, to prevent the elephants coming too near, as well as to cook their victuals and keep them warm. The sentinels supply these fires with fuel, especially green bamboos, which are generally at hand, and which, by the crackling and loud report they make, together with the noise of the watchmen, deter the elephants from coming near; so that the herd commonly remains at a distance near the centre of the circle. Should they at any time advance, the alarm

is given, and all the people immediately make a noise and use their rattles, to cause them to keep at a greater distance. In this manner they are gradually brought to the *keddah*, or place where they are to be secured. As the natives are extremely slow in their operations, they seldom bring the herd above one circle in a day, except on an emergency, when they exert themselves and advance two circles. They have no tents or covering but the thick woods, which during the day keep off the rays of the sun; and at night they sleep by the fires they have lighted, upon mats spread on the ground, wrapt up in a piece of coarse cloth. The season is then so mild that the people continue very healthy; and an accident seldom happens, except to stragglers about the outskirts of the wood, who are sometimes, though very rarely, carried off by tigers. The *keddah*, or place where the herd is to be secured, is differently constructed in different places: here it consists of three enclosures, communicating with each other by means of narrow openings or gateways. The outer enclosure, or the one next to the place where the elephants are to enter, is the largest; the middle one is generally, though not always, the next in size, and the third, or furthermost, is the smallest: these proportions, however, are not always adhered to in the making of a *keddah*; nor indeed does there appear to me any reason for making three enclosures: but as my intentions are merely to relate facts, I shall proceed to observe, that when in the third or last

enclosure, the elephants are then only deemed secure: here they are kept six or eight days, and are regularly, though scantily, fed from a scaffold on the outside, close to the entrance of an outlet called the *roomee*, which is about sixty feet long, and very narrow, and through which the elephants are to be taken out one by one. In many places this mode is not adopted; for, as soon as the herd has been surrounded by a strong palisade, *koomkees* are sent in with proper people, who tie them on the spot, in the same manner as was mentioned above of the *goondahs*, or male elephants, that are taken singly. These enclosures are all pretty strong, but the third is the strongest. Nor are the elephants deemed secure, as already mentioned, till they have entered it. This enclosure has, like the other two, a pretty deep ditch on the inside; and upon the bank of earth that is thrown up from the excavation a row of strong palisades of middle-sized trees is planted, strengthened with cross bars, which are tied to them about the distance of fourteen inches from each other; and these are supported on the outside by strong posts like buttresses, having one end sunk in the earth and the other pressing against the cross bars to which they are fastened. When the herd is brought near to the first enclosure, or *baigcote*, which has two gateways towards the jungle, from which the elephants are to advance, the greatest difficulty is to get the elephants to enter; for, notwithstanding the precautions taken to disguise both the entries, as well as

the palisade which surrounds this enclosure, the *palmai*, or leader, now appears to suspect some snare, from the difficulty and hesitation with which in general she passes into it: but as soon as she enters, the whole herd implicitly follows. Immediately, when they are all passed the gateway, fires are lighted round the greatest part of the enclosure, and particularly at the entries, to prevent the elephants from returning. The hunters from without then make a terrible noise by shouting, beating of *tomtoms* (a kind of drum), firing blunt cartridges, &c. to urge the herd on to the next enclosure. The elephants, finding themselves ensnared, scream and make a noise; but finding no opening except the entrance to the next enclosure, and which they at first generally avoid, they return to the place through which they lately passed, thinking perhaps to escape; but now find it strongly barricaded: and as there is no ditch at this place, the hunters, to prevent their coming near and forcing their way, keep a line of fire constantly burning all along where the ditch is interrupted, and supply it with fuel from the top of the palisade, the people from without shouting and hallooing to drive them away. Wherever they turn they find themselves opposed by burning fires, or bundles of reeds and dried grass, which are thrust through the opening of the palisades, except towards the entrance of the second enclosure, or *doobrazecote*. After traversing the *baigcote* for some time, and finding no chance of escaping but through the gateway into

the next enclosure, the leader enters, and the rest follow: the gate is instantly shut by people who are stationed on a small scaffold immediately above it, and strongly barricaded, fires are lighted, and the same discordant din made and continued, till the herd has passed through another gateway into the last enclosure, or *rajecote*, the gate of which is secured in the same manner as the former was. The elephants being now completely surrounded on all sides, and perceiving no outlet through which they can escape, appear desperate, and in their fury advance frequently to the ditch, in order to break down the palisade, inflating their trunks, screaming louder and shriller than any trumpet, and sometimes grumbling like the hollow murmur of distant thunder; but wherever they make an attack, they are opposed by lighted fires, and by the noise and triumphant shouts of the hunters. As they must remain some time in this enclosure, care is always taken to have part of the ditch filled with water, which is supplied by a small stream, either natural, or conducted through an artificial channel from some neighbouring reservoir. The elephants have recourse to this water to quench their thirst, and cool themselves after their fatigues, by sucking the water into their trunks, and then squirting it over every part of their bodies. While they remain in this enclosure they continue sulky, and seem to meditate their escape: but the hunters build huts, and form an encampment as it were around them, close to the palisade; watchmen are

placed, and every precaution used to prevent their breaking through. This they would soon effect if left to themselves, notwithstanding the palisade is made of strong stakes, sunk into the earth on the outside of the ditch, and strengthened by cross-bars and buttresses, as already mentioned.

" When the herd has continued a few days in the *keddah*, the doors of the *roomee* are opened, into which some one of the elephants is enticed to enter, by having food thrown first before, and then gradually further on into the passage, till the elephant has advanced far enough to admit of the gates being shut. Above this wicker-gate, or door, two men are stationed on a small scaffold, who throw down the food. When the elephant has passed beyond the door, they give the signal to a man, who, from without, shuts it by pulling a string, and they secure it by throwing two bars that stand perpendicular on each side, the one across the other, thus ×, forming the figure of St. Andrew's cross; and then two similar bars are thrown across each other behind the door next the *keddah*, so that the door is in the centre. For further security horizontal bars are pushed across the *roomee*, through the openings of the palisades, both before and behind those crosses, to prevent the possibility of the doors being broken. The *roomee* is so narrow, that a large elephant cannot turn in it; but as soon as he hears the noise that is made in shutting the gate he retreats backwards, and endeavours to force it. Being now secured in the manner already noticed,

his efforts are unavailing. Finding his retreat then cut off, he advances, and exerts his utmost force to break down the bars, by running against them, screaming and roaring, and battering them like a ram, by repeated blows of his head, retreating and advancing with the utmost fury. In his rage he rises and leaps upon the bars with his fore-feet, and strives to break them down with his huge weight. In February 1788, a large female elephant dropped down dead in the *roomee*, from the violent exertions she made. When the elephant is somewhat fatigued by these exertions, strong ropes, with running nooses, are placed in the outlet by the hunters; and as soon as he puts a foot within the noose, it is immediately drawn tight, and fastened to the palisades. When all his feet have been made pretty fast, two men place themselves behind some bars that run across the *roomee*, to prevent his kicking them, and with great caution tie his hind-legs together, by passing a cord alternately from the one to the other, like the figure 8, and then fastening these turns as above described. After this the cords are put on in succession, in the same manner as on the *goondah*, only that here the people are in greater security. While these ropes are making fast, the other hunters are careful not to go too near, but keep on the outside of the palisade, and divert his attention, as much as they can, from those employed in fastening them, by supplying him with grass, and sometimes with plantain-leaves and sugar-canes; of which he is remarkably

fond; by presenting him a stick, giving him hopes of catching it, or by gently striking or tickling his proboscis. When the whole apparatus is properly secured, the ends of the two cables (*dools*) which were fastened round his neck are brought forward to the end of the *roomee*, where two female elephants are waiting; and to them these cables are made fast. When every thing is ready, the door at the end of the outlet is opened, the cross-bars are removed, and the passage left clear. The ropes that tied his legs to the palisades are loosened; and if he does not advance readily, they goad him with long poles, sharpened at the ends or pointed with iron, and urge him on with their noise and din; and at the same time the females pull him gently forward. As soon as he has cleared the *roomee*, his conductors separate; so that, if he attempts to go to one side, he is prevented by the elephant that pulls in the opposite direction, and *vice versâ*. The cords which tie his hind-legs, though but loosely, yet prevent his going fast; and thus situated he is conducted like an enraged bull, that has a cord fastened to his horns on each side, so that he cannot turn either to the right or left to avenge himself. In like manner is this noble animal led to the next tree, as the *goondahs* before mentioned were. Sometimes he becomes obstinate, and will not advance; in which case, while one of his conductors draws him forward, the other comes behind, and pushes him on. Should he lie down, she puts her snout under, and raises him up, sup-

porting him on her knee, and with her head pushing him forward with all her strength. The hunters likewise assist, by goading him, and urging him on by their noise and din. Sometimes they are even obliged to put lighted torches near, in order to make him advance. As soon as each elephant is secured, he is left in charge to the *mahote*, or keeper, who is appointed to attend and instruct him; and under him there are from two to five *coolies*, according to the size of the elephant, in order to assist, and to supply food and water, till he becomes so tractable as to bring the former himself. These people erect a small hut immediately before him, where the keeper, or one of the *coolies*, constantly attends him, supplies him with food, and sooths and caresses him by a variety of little arts. Sometimes the keeper threatens, and even goads him with a long stick pointed with iron; but more generally coaxes and flatters him, scratching his head and trunk with a long bamboo split at one end into many pieces, and driving away the flies from any sores occasioned by the hurts and bruises he got by his efforts to escape from the *roomee*. This animal's skin is soft, considering his great size; and, being extremely sensible, is easily cut or pierced, more so than the skin of most large quadrupeds. The *mahote* likewise keeps him cool by squirting water all over him, and standing without the reach of his trunk. In a few days he advances cautiously to his side, and strokes and pats him with his hand, speaking to him all the while

in a soothing tone of voice; and in a little time he begins to know his keeper, and obey his commands. By degrees the *mahote* becomes familiar to him; and at length gets upon his back from one of the tame elephants; and as the animal becomes more tractable, he advances gradually forward towards his head, till at last he is permitted to seat himself on his neck, from which place he regulates and directs all his motions.

"In five or six weeks he becomes obedient to his keeper; his fetters are taken off by degrees; and generally, in about five or six months, he suffers himself to be conducted by the *mahote* from one place to another. Care, however, is always taken not to let him approach his former haunts, lest a recollection of the freedom he there enjoyed should induce him again to recover his liberty. This obedience to his conductor seems to proceed partly from a sense of generosity, as it is in some measure voluntary; for, whenever an elephant takes fright, or is determined to run away, all the exertions of the *mahote* cannot prevent him, even by beating, or digging into his head the pointed iron hook with which he directs him. On such an occasion the animal totally disregards these feeble efforts; otherwise he could shake or pull him off with his trunk, and dash him in pieces. Accidents of this kind happen almost every year, especially to those *mahotes* who attend the large *goondahs*; but such accidents are in general owing entirely to their own carelessness and neglect. It is necessary to treat

the males with much greater severity than the females, to keep them in awe; but it is too common a practice among the *mahotes*, either to be negligent in using proper measures to render their elephants docile, or to trust too much to their good-nature, before they are thoroughly acquainted with their dispositions. The iron hook with which they direct them is pretty heavy, about sixteen inches long, with a straight spike advancing a little beyond the curve of the hook, so that altogether it is exactly like that which ferrymen or boatmen use fastened to a long pole."

A residence of more than ten years in Tiperah, a province of Bengal, situated at the eastern extremity of the British dominions in Asia, where herds of elephants are taken every season, afforded Mr. Corse frequent opportunities of observing not only the methods of taking them, but also the habits and manners of this noble animal. From the year 1792 till 1797, the elephant hunters were entirely under his direction; therefore the above account may be safely relied upon as strictly correct.

It has been stated, that the sagacity of the elephant is so great, and his memory so retentive, that when once he has received an injury, or been in bondage, and afterwards escapes, it is not possible, by any art, again to entrap him. The following history of an elephant, taken by Mr. Luke, of Longford Hall, Shropshire, (then the resident of Tiperah,) contains many interesting particulars on this subject:

"The elephant was a female, and was taken at first with a herd of many others, in the year 1765, by rajah Kishun Maunick, who, about six months after, gave her to Abdoor Rezah, a man of some rank and consequence in the district. In 1767, the rajah sent a force against this Abdoor Rezah, for some refractory conduct, who, in his retreat to the hills, turned her loose into the woods, after having used her above two years as a riding elephant. In January 1770 she was retaken by the rajah; but in April 1771 she broke loose from her pickets, in a stormy night, and escaped to the hills. On the 25th of December 1782 she was driven by Mr. Leeke's elephant hunters into a *keddah*; and, the day following, when Mr. Leeke went to see the herd that had been secured, this elephant was pointed out to him by the hunters, and particularly by a driver who had had charge of her for some time, and well recollected her. They frequently called to her by name, to which she seemed to pay some attention, by immediately looking towards them when her name *Juggut-peauree* was repeated; nor did she appear like the wild elephants, which were constantly running about the *keddah* in a rage, but seemed perfectly reconciled to her situation. From the 25th of December to the 13th of January (a space of eighteen days) she never went near enough the outlet (or *roomee*) to be secured; from a recollection, perhaps, of what she had twice before suffered. Orders, however, had been given not to permit her to enter the outlet, had she been so in-

clined, as Mr. Leeke wished to be present when she was taken out of the *keddah*. On the 13th of January 1783 Mr. Leeke went out, when there were only herself, another female, and eight young ones remaining in the enclosure. After the other female had been secured by one of the *koomkees* sent in for that purpose, the hunters were ordered to call *Juggut-peauree*. She immediately came to the side of the ditch, within the enclosure; on which, some of the drivers were desired to carry in a plantain-tree, the leaves of which she not only took from their hands with her trunk, but opened her mouth for them to put a leaf into it; which they did, stroking her, caressing her, and calling to her by name. Mr. Leeke, seeing the animal so tame, would not permit the hunters to attempt tying her; but ordered one of the trained elephants to be brought to her, and the driver to take her by the ear and order her to lie down. At first she did not like the *koomkee* to go near her, and retired to a distance, seemingly angry; but when the drivers, who were on foot, called to her, she came immediately, and allowed them to stroke and caress her as before; and in a few minutes after permitted the trained females to be familiar. A driver from one of these then fastened a rope round her body, and instantly jumped on her back; which at the moment she did not like, but was soon reconciled to it. A small cord was next fastened round her neck for the driver to put his feet in; who seating himself on the neck, in the usual manner, drove her

about the *keddah*, the same as any of the tame elephants.

" After this, he ordered her to lie down, which she instantly did; nor did she rise till she was desired. He fed her from his seat, gave her his stick to hold, which she took with her trunk and put into her mouth, kept and then returned it, as she was directed, and as she formerly had been accustomed to do. In short, she was so obedient, that, had there been more wild elephants in the *keddah* to tie, she would have been useful in securing them. Mr. Leeke himself then went up, took her by the ear, and bade her lie down; a command she instantly obeyed."

Mr. Corse was himself a witness both of the escape and retaking of one, as related in the following account:

" In June 1787, *Jâttra-mungul*, a male elephant, taken the year before, was travelling in company with some other elephants, towards Chittigong, laden with a tent and some baggage for the accommodation of Mr. Buller and myself on the journey. Having come upon a tiger's track, which elephants discover readily by the smell, he took fright and ran off to the woods, in spite of the efforts of his driver. On entering the wood, the driver saved himself by springing from the elephant, and clinging to the branch of a tree, under which he was passing: when the elephant had got rid of his driver, he soon contrived to shake off his load. As soon as he ran away a trained female was dispatched

after him, but could not get up in time to prevent his escape: she, however, brought back his driver, and the load he had thrown off, and we proceeded, without any hope of ever seeing him again.

" Eighteen months after this, when a herd of elephants had been taken, and had remained several days in the enclosure, till they were enticed into the outlet, there tied, and led out in the usual manner, one of the drivers, viewing a male elephant very attentively, declared that he resembled the one which had run away. This excited the curiosity of every one to go and look at him; but when any person came near, the animal struck at him with his trunk, and, in every respect, appeared as wild and outrageous as any of the other elephants. At length, an old hunter, coming up and examining him narrowly, declared he was the very elephant that had made his escape about eighteen months before.

" Confident of this, he boldly rode up to him, on a tame elephant, and ordered him to lie down, pulling him by the ear at the same time. The animal seemed quite taken by surprise, and instantly obeyed the word of command, with as much quickness as the ropes with which he was tied permitted; uttering at the same time a peculiar shrill squeak through his trunk, as he had formerly been known to do; by which he was immediately recognised by every person who had ever been acquainted with this peculiarity."

Thus we see that this elephant, for the space of

eight or ten days, during which he was in the *keddah*, and even while he was tying in the outlet, appeared equally wild and fierce as the boldest elephant then taken; so that he was not even suspected of having been formerly taken, till he was conducted from the outlet. The moment, however, he was addressed in a commanding tone, the recollection of his former obedience seemed to rush upon him at once; and, without any difficulty, he permitted a driver to be seated on his neck, who in a few days made him as tractable as ever.

These and several other instances which have occurred, clearly evince that elephants have not the sagacity to avoid a snare into which they have, even more than once, fallen.

While Mr. Bruce, in his return from Gondah, was spending a few days at the house of Ayto Confu, which he describes as delightfully situated on the edge of a precipice, he availed himself of the opportunity to join a party which had met for the purpose of hunting the elephant; and, as he gives a particular description of the Abyssinian method of destroying that noble animal, we shall proceed to lay his account before our readers.

"Though we were all happy to our wish in this enchanted mountain, the active spirit of Ayto Confu could not rest. He was come to hunt the elephant, and hunt him he would. All those that understood any thing of this exercise had assembled from a great distance, to meet Ayto Confu at Tcherkin. He and Engedan, from the moment

they arrived, had been overlooking from the precipice their servants training and managing their horses in the market-place below. Great bunches of the finest canes had been brought from Kaura for javelins; and the whole house was employed in fitting heads to them in the most advantageous manner. For my part, though I should have been very well contented to have remained where I was, yet the preparations for sport of so noble a kind roused my spirits, and made me desirous to join in it.

"On the 6th, an hour before day, after a hearty breakfast, we mounted on horseback, to the number of about thirty, belonging to Ayto Confu. But there was another body, both of horse and foot, which made hunting the elephant their particular business. These men dwell constantly in the woods, and know very little the use of bread, living entirely upon the flesh of the beasts they kill, chiefly that of the elephant or rhinoceros. They are exceedingly thin, light, and agile, both on horseback and foot; are very swarthy, though few of them black; none of them woolly-headed, and all of them have European features. They are called *Agageer*, a name of their profession, not of their nation, which comes from the word *agar*, and signifies to hough or hamstring with a sharp weapon. More properly it means the cutting the tendon of the heel, and is a characteristic of the manner in which they kill the elephant, which is shortly as follows:

"Two men, absolutely naked, without any rag or covering at all about them, get on horseback; this precaution is for fear of being laid hold of by the trees or bushes in making their escape from a very watchful enemy. One of these riders sits upon the back of the horse, sometimes with a saddle, and sometimes without one, with only a switch or short stick in one hand, carefully managing the bridle with the other; behind him sits his companion, who has no other arms but a broad sword, such as is used by Sclavonians, and which is brought from Trieste. His left hand is employed grasping the sword by the handle; about fourteen inches of the blade is covered with whip-cord. This part he takes in his right hand, without any danger of being hurt by it; and, though the edges of the lower part of the sword are as sharp as a razor, he carries it without a scabbard.

"As soon as the elephant is found feeding, the horseman rides before him as near his face as possible; or if he flies, crosses him in all directions, crying out—'I am such a man and such a man; this is my horse, that has such a name; I killed your father in such a place, and your grandfather in such another place; and I am now come to kill you; you are but an ass in comparison of them.' This nonsense he verily believes the elephant understands, who, chafed and angry at hearing the noise immediately before him, seeks to seize him with his trunk, or proboscis, and, intent upon this,

follows the horse everywhere, turning and turning round with him, neglectful of making his escape by running straight forward, in which consists his only safety. After having made him turn once or twice in pursuit of the horse, the horseman rides close up along-side of him, and drops his companion just behind on the off-side; and while he engages the elephant's attention upon the horse, the footman behind gives him a drawn stroke just above the heel, or what in man is called the tendon of Achilles. This is the critical moment; the horseman immediately wheels round, takes his companion up behind him, and rides off full speed after the rest of the herd, if they have started more than one; and sometimes an expert agageer will kill three out of one herd. If the sword is good, and the man not afraid, the tendon is commonly entirely separated; and if it is not cut through, it is generally so far divided, that the animal, with the stress he puts upon it, breaks the remaining part asunder. In either case, he remains incapable of advancing a step, till the horseman return, or his companions coming up pierce him through with javelins and lances: he then falls to the ground, and expires with loss of blood.

" The agageer nearest me presently lamed his elephant, and left him standing. Ayto Engedan, Ayto Confu, Guebra Mariam, and several others, fixed their spears in the other before the agageer had cut his tendons. My agageer, however, having

wounded the first elephant, failed in the pursuit of the second; and being close upon him at the entrance of the wood, he received a violent blow from the branch of a tree which the elephant had bent by his weight, and, after passing, allowed it to replace itself; when it knocked down both the riders, and very much hurt the horse. This, indeed, is the great danger in elephant-hunting; for some of the trees, that are dry and short, break by the violent pressure of so immense a body moving so rapidly, and fall upon the pursuers, or across the roads. But the greatest number of these trees being of a succulent quality, they bend without breaking, and return quickly to their former position, when they strike both horse and man so violently, that they often beat them to pieces. Dexterous too as the riders are, the elephant sometimes reaches them with his trunk, with which he dashes the horse against the ground, and then sets his feet upon him, till he tears him limb from limb with his proboscis: a great many hunters die this way. Besides this, the soil at this time of the year is split into deep chasms, or cavities, by the heat of the sun, so that nothing can be more dangerous than the riding.

"The elephant once slain, they cut the whole flesh off his bones into thongs, like the reins of a bridle, and hang these like festoons upon the branches of trees, till they become perfectly dry, without salt; and they then lay them up for their provisions in the season of the rains."

A very interesting account of the affection of a young elephant for its mother, concludes the description of this cruel amusement.

" There now remained but two elephants of those that had been discovered, which were a she one with a calf. The agageer would willingly have let these alone, as the teeth of the female are very small, and the young one is of no sort of value, even for food, its flesh shrinking much upon drying: but the hunters would not be limited in their sport. The people having observed the place of her retreat, thither we eagerly followed. She was very soon found, and as soon lamed by the agageers; but when they came to wound her with their darts, as every one did in turn, to our very great surprise, the young one, which had been suffered to escape unheeded and unpursued, came out from the thicket, apparently in great anger, running upon the horses and men with all the violence it was master of. I was amazed, and as much as ever I was, upon such an occasion, afflicted, at seeing the great affection of the little animal defending its wounded mother, heedless of its own life or safety. I therefore cried to them for God's sake to spare the mother,—though it was then too late; and the calf had made several rude attacks upon me, which I avoided without difficulty; but I am happy to this day in the reflection that I did not strike it. At last making one of his attacks upon Ayto Engedan, it hurt him a little upon the leg; upon which he thrust it through with his lance, as others did after,

and it then fell dead before its wounded mother, whom it had so affectionately defended."

In the Asiatic Annual Register for 1804 there is an account of a splendid hunting party of the late Nawab, Asuf-ud-Dowlah, who with an immense retinue took the field to the destruction of every animal that came in the way: among the number of the slain was included an elephant; and as a particular account is given of the manner in which he was attacked, we shall relate it nearly in the words of the writer.—The next sport of any magnitude was the attack on a wild elephant, who was seen on a large plain overgrown with grass. The Nawab immediately formed a semicircle with four hundred tame elephants, who were directed to advance and surround him. When the semicircle of elephants got within three hundred yards of the wild one, he looked amazed, but not frightened: two large and fierce elephants were ordered to advance against him; but they were repulsed with a dreadful shock, and drove-by the Nawab, who, as the wild one passed, ordered some of the strongest female elephants to go along-side and endeavour to entangle him with nooses and running knots: the attempt, however, was vain, as he snapped every rope, and none of the tame elephants could stop his progress. The Nawab, perceiving it impossible to catch him, ordered his death, and immediately a volley of above a hundred shots was fired: many of the balls hit him; but he seemed unconcerned, and moved on towards the mountains: an incessant

fire was kept up for near half an hour; the Nawab and most of his omras, or lords, used rifles which carried two or three ounce-balls; but they made very little impression, and scarcely penetrated beyond the skin. Our author, who was mounted upon a female elephant, went up repeatedly within ten yards of the wild one, and fired his rifle at his head; the blood gushed out, but the skull was invulnerable. Some of the Kandahar horse then galloped up and wounded the beast in several places. At length being much exhausted with the loss of blood, from the number of wounds which he had received; he slackened his pace, and became quite calm and serene, as if determined to meet his approaching end. The horsemen seeing him weak and slow, dismounted, and with their swords began a furious attack on the tendons of his hind-legs, which were soon divided, and the operation completely disabled the poor animal from proceeding any further: he staggered, and then fell without a groan. The hatchet-men now advanced, and began to cut away his large ivory tusks, while the horsemen and soldiers in the most unfeeling manner attacked the dying creature with their swords. We can readily believe the writer, when he says the sight was very affecting: the noble animal still breathed, and breathed without a groan; he rolled his eyes with anguish on the surrounding crowd, and, making a last effort to rise, expired with a sigh.

An elephant in Adsmeer, which often passed

through the bazar, or market, as he went by a certain herb-woman, always received from her a mouthful of greens. Being one day seized with a periodical fit of madness, he broke his fetters, and, running through the market, put the crowd to flight; and among others, this woman, who in her haste forgot a little child at her stall. The elephant, recollecting the spot where his benefactress was accustomed to sit, took up the infant gently with his trunk, and conveyed it to a place of safety.

A soldier at Pondicherry was accustomed to give a certain quantity of arrack to one of these animals every time he got his pay; and, having one day intoxicated himself, and being pursued by the guard, who wanted to put him in prison, he took refuge under the elephant, and fell fast asleep. The guard in vain attempted to drag him from this asylum; for the elephant defended him with its trunk. Next day the soldier, having recovered from his intoxication, was in dreadful apprehensions when he found himself under the belly of an animal so enormous. The elephant, which unquestionably perceived his terror, caressed him with his trunk.

A gentleman who resided some years in India communicated to us the following remarks respecting these animals. The bodies of elephants are frequently oiled, to prevent the effects of the sun on them: they are fond of the water in hot weather,

and seem delighted while there to be scrubbed with a brick, or any hard substance, on the upper part of the head. They are very sure-footed, have an active shuffling gait, and generally travel about three or four miles an hour, but may be urged on to six, when goaded by a man who runs behind the animal for that purpose. They are very fond of sugar-canes and the leaves of the banyan; they can free a cocoa-nut from its tough coat, crack it, and take out the nut free from the shell. A small race of elephants, from five to six feet in height, are much used about the court in the northern part of India. When the elephant passes through a crowd, he is very careful to open a way with his trunk, that he may not injure any one. This observation is strengthened by M. d'Obsonville, who informs us that the Baron de Lauriston was induced to go to Laknaor, the capital of the soubah or viceroyalty of that name, at a time when an epidemic distemper was making the greatest ravages amongst the inhabitants. The principal road to the palace-gate was covered with the sick and dying, extended on the ground, at the very moment when the nabob must necessarily pass. It appeared impossible for the elephant to do otherwise than tread upon and crush many of these poor wretches in his passage, unless the prince would stop till the way could be cleared: but he was in haste, and such tenderness would be unbecoming in a personage of his importance. The elephant, how-

ever, without appearing to slacken his pace, and without having received any command for that purpose, assisted them with his trunk, removed some, and stepped over the rest with so much address and assiduity, that not one person was wounded.

Although the Asiatic elephant has in all probability been subjected by the natives from time immemorial, yet we do not find any mention made of his military services till the time of Alexander; when Porus, king of India, appeared on the banks of the Hydaspes, to oppose the passage of the conqueror, with eighty-five elephants in his train; while he, who exceeded the usual stature of men, clothed in his armour glittering with gold and silver, and mounted on an elephant of a much larger size than any of the rest, appeared at the same time terrible and majestic.

We cannot finish the history of this interesting animal, without noticing a singular fact respecting some fossil remains found in this country. The teeth of a hippopotamus, and the entire tusk of an elephant, nine feet in length, which is one of the longest ever discovered, together with other bones of the same animal, were found buried at the distance of thirty feet under ground, by some workmen of Mr. Trimmer, at Brentford, near London.

The figure of the elephant which accompanies this account was done from the animal in a state of nature, and differs considerably from the figures

already given. This at first may induce many to consider it as erroneous; but we do not hesitate to pronounce it correct, as it rests on the authority of Mr. Daniell, who carefully studied the elephant during his residence in India.

DIGITATED QUADRUPEDS.

APE.

GENERIC CHARACTER.

Four cutting teeth, and two canine, in each jaw.
Feet formed like hands, and, except in one instance, have four fingers and thumb.

ORANG OUTANG.

SPECIFIC CHARACTER.

SIMIA SATYRUS. S. ecaudata ferruginea, lacertorum pilis reversis, natibus tectis. *Linn. Syst. Nat. Gmel.* 1. p. 26.

Without a tail, colour rusty brown, hair on the lower part of the arms reversed, without callosities behind.

HOMO SYLVESTRIS. *Edw. Av.* 5. p. 6. t. 213.

ORANG UTANG sive HOMO SYLVESTRIS. *Tyson. Anat. Pygm.* f. 1, 2.

ORANG OUTANG. *Sm. Buff.* v. 8. p. 77. pl. 258. *Penn. Hist. Quadr.* v. 1. p. 180. pl. 36. *Bew. Quadr.* p. 413. Oran otan *Shaw Gen. Zool.* pl. 1, 2, 3, 4.

OF the very extensive tribe to which this animal belongs, not one so nearly approaches the human form, or is so strongly impressed with the human likeness, as the oran outang, or wild man of the

woods. It is not in the external form alone that this creature resembles the human; for such a surprising similitude is seen to prevail, when examined anatomically, that we shrink from the sight, and the mind revolts at the idea of so close a connection between the monkey and the man.

These animals reside in the warmer parts of Africa, in India, and in some of the Indian islands, where they roam about to the great terror of the Negroes, who dare not pass through the woods alone, lest they should be attacked by them and overpowered. The full grown oran outang is said to be six feet in height, and of great strength. The general colour is brown; the face resembles that of a man, and is equally bare; the eyes are deep sunk in the head. The ears, the hands, and the feet, bear a strong resemblance to the human; and the body, which is lightly covered with hair, scarcely differs from that of a man, except that there are no calves to the legs. He walks erect, feeds upon fruits, and sleeps under trees. Warmth is so congenial to his nature, that, when the Negroes leave a fire in the woods, this creature will sit close to it as long as any embers are left burning, without having sense enough to renew it by the addition of fresh fuel.

Although the oran outang in a wild state appears so formidable a creature, yet when domesticated he becomes gentle and obedient, and capable of being taught a variety of actions. Buffon describes the one he saw, as a mild and docile animal; he had

neither the impatience of the Barbary ape, the malice of the baboon, nor the extravagance of the monkey. He conducted himself with a great deal of gravity, and constantly presented his hand to the company who came to visit him. The Count assures us that he has seen him sit down at table, unfold his towel, wipe his lips, use a spoon or a fork to carry the victuals to his mouth, pour his liquor into a glass, and make it touch that of the person who drank along with him. When invited to take tea, he brought a cup and saucer, placed them on the table, put in sugar, poured out the tea, and allowed it to cool before he drank it. But it must be remembered that he performed all these actions either by the signs or verbal orders of his master, who had probably taken much pains to teach him. He was fond of sweets, and drank a little wine; but left it at all times for milk, tea, or other mild liquors. This animal was afflicted with a teasing cough, for which such a quantity of sweetmeats were given him as, it is supposed, contributed to shorten his life. He lived one year in Paris, and died in London the following winter.

The account given by Mr. Vosmaer of the manners of an oran outang is too curious and interesting to be passed over without notice. This animal was brought into Holland in the year 1776, and placed in the Prince of Orange's menagerie. It was a female, about two feet and a half high, without any appearance of fierceness or malignity, and of a somewhat melancholy countenance. It was

fond of being in company, and seemed sensible of the attentions showed it by those to whose care it was committed. Often when they retired it would throw itself on the ground, as if in despair, uttering lamentable cries, and tearing in pieces the linen within its reach. Its keeper having sometimes been accustomed to sit near it on the ground, it took the hay of its bed and laid it by its side, and seemed by every demonstration to invite him to be seated near. Its usual manner of walking was on all fours, like other apes; but it could also walk on its hind feet only. One morning it got unchained, and was seen, with wonderful agility, ascending the beams and rafters of the building: it was not without some pains that it was retaken, and it then showed an extraordinary degree of muscular power; the assistance of four men being necessary, in order to hold it in such a manner as to be properly secured. During its state of liberty it had, amongst other things, taken the cork from a bottle containing some Malaga wine, which it drank to the last drop, and had set the bottle in its place again. The chief food of this animal was bread, roots, and particularly carrots: it was fond of all sorts of fruit, but gave the preference to strawberries, and appeared extremely fond of aromatic plants. Meat both boiled and roasted, as well as fish, was eaten. It was not observed to hunt for insects like other monkeys; it was fond of eggs, which it broke with its teeth and sucked completely; but fish and roast meat seemed its fa-

vourite food. It had been taught to eat with a spoon and a fork, and with the latter would pick strawberries out of a plate, one by one, and put them into its mouth. Its common drink was water; but it also very willingly drank all sorts of wine, and particularly Malaga.

Mr. Vosmaer was assured, that on shipboard it ran freely about the vessel, played with the sailors, and would go like them into the kitchen for its mess. At the approach of night it lay down to sleep, and prepared its bed by shaking well the hay on which it slept, putting it in proper order, and lastly covering itself with the coverlet. One day, seeing the padlock of its chain opened with a key, and shut again, it seized a little bit of stick, and put it into the key-hole, turning it about in all directions, endeavouring to see whether the padlock would open or not. This animal lived seven months in Holland. On its first arrival it had but very little hair, except on its back and arms; but on the approach of winter it became extremely well covered, the hair on the back being three inches in length.

We cannot help confessing, however reluctantly, that the orang outang very strongly resembles our image: yet, after all, let us allow the Count de Buffon to be right, when he observes that the interval which separates the two species is immense. The ape's resemblance in figure and organisation, and the movements of imitation which seem to result from these similarities, neither make him

approach the nature of man, nor elevate him above that of a brute: no disposition of matter will give mind; and the body, how nicely soever formed, is formed in vain, when there is not infused a soul to direct its operations.

MONKEY TRIBE IN GENERAL.

The other branches of the monkey family are far more active and mischievous than the orang outang; and, although frequently domesticated, they never lose their capricious disposition: they seem careless and insensible of the mischief they do; and Goldsmith tells us that he once saw a baboon break a whole table of china, without appearing in the least conscious of having done amiss. Baboons are passionately fond of fruit, and will go in troops to rob orchards, gardens, or vineyards. On such occasions, says Kolben, some of them enter the enclosure, while others remain on the wall as sentinels, to give notice of any approaching danger. The rest of the troop are stationed without the garden, at convenient distances from each other, and thus form a line, which extends from the place of pillage to that of their rendezvous. Matters being disposed in this manner, the baboons begin the operation, and throw to those on the wall melons, gourds, apples, pears, &c. Those on the wall throw these fruits to their neighbours below: and

MONKEY.

Designed by W. Daniell.

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thus the spoils are handed along the whole line, which generally terminates in some mountain. They are so dexterous and quick-sighted, that they seldom allow the fruit to fall in throwing it from one to another. All this is performed with profound silence and great dispatch. When the sentinels perceive any person, they cry; and at this signal the whole troop fly off with astonishing rapidity.

The imitative disposition of these creatures is so great, that we ought to be careful, when in their presence, not to set any example that we do not wish them to follow. Mr. Boodle, a gentleman of considerable fortune, kept a baboon in his house, who nearly lost his life by too closely copying the actions of his master. A large box of cathartic pills had been sent by the apothecary, with directions for Mr. Boodle to take two of them occasionally: it so happened that Jack (the baboon's name) was present when he took the first dose; and without considering the baboon, Mr. B. placed the box upon the mantle-piece. The cunning animal, who had been carefully observing his master, was no sooner left alone than he reached down the box of pills, and not exactly understanding the label, he deliberately swallowed them all one after the other, and, replacing the box upon the mantle, went down stairs, and seated himself by the kitchen fire. Here, however, he remained but a short time; for the strength of the physic, aided by the heat, produced such a terrible commotion, that Jack was obliged to make use of both his hands to prevent

the effect till he had time to reach the garden, where he ascended a tree, crying piteously, and remained there more dead than alive till the operation was over.

Near the Cape of Good Hope these animals are numerous, and will sit undismayed upon the tops of the rocks, from whence they will throw down stones of all sorts and sizes on the traveller who is passing beneath. A gun becomes indispensably necessary upon these occasions, and is the only thing regarded by these impudent beasts, who, alarmed at the report, will fly from the rocks in all directions. Thunberg says, it is curious to observe them in their flight. With their cubs on their backs they will often make astonishing leaps up a perpendicular rock, and it is but seldom that they can be shot.

It is highly probable that Robert Lade met with this species, when he used to traverse the mountain in the neighbourhood of the Cape for the express purpose of hunting monkeys. As his account is expressive of the manners of these creatures, we shall proceed to relate it in his own words. "I can neither describe all the arts practised by these animals, nor the nimbleness and impudence with which they returned after being pursued by us. Sometimes they allowed us to approach so near them, that I was almost certain of seizing them; but, when I made the attempt, they sprung, at a single leap, ten paces from me, and mounted trees with equal agility, from which they looked at us

with great indifference, and seemed to derive pleasure from our astonishment. Some of them were so large, that, if our interpreter had not assured us that they were neither ferocious nor dangerous, our number would not have appeared to be sufficient to protect us from their attacks. As it would serve no purpose to kill them, we did not use our guns. But the captain happened to aim at a very large one which sat on the top of a tree, after having fatigued us a long time in pursuing him. This kind of menace, however, of which the animal, perhaps, recollected his having sometimes seen the consequences, terrified him to such a degree that he fell down motionless at our feet, and we had no difficulty in seizing him. But whenever he recovered from his stupor it required all our dexterity and efforts to keep him. We tied his pats together; but he bit so furiously that we were under the necessity of covering his head with our handkerchiefs."

There are not many varieties in the larger tribes of the monkey kind: but when we come to the smaller class, the differences among them are exceedingly increased. Most of the countries in the tropical climates swarm with them; where they take possession of the woody parts, and live in separate colonies, each of which, we are told, is different from that of the next district in colour, in size, and malicious mischief. It has been remarked, that the monkeys of two cantons are never found to mix with each other, but rigorously to observe a sepa-

ration: like the savage nations among whom they are found, they guard their limits from the intrusion of all strangers of a different race from themselves. It is of no avail for the lion or the tiger to dispute the point with these active little wretches, who carry on an offensive war from the tops of the trees, and springing from branch to branch bid defiance to their pursuers. The feathered inhabitants of the woods, who build their nests upon the trees, are continually disturbed by the monkeys, who are perpetually on the watch to rob them; and such is their mischievous disposition, that we are assured they will fling their eggs upon the ground when they want appetite or inclination to devour them. Snakes are the greatest enemies the monkeys have; and the larger kinds will swallow them whole if they happen to surprise them sleeping.

The negroes, who have a strong antipathy to these animals on account of the great mischief they do to their plantations, feel delighted when they can get an opportuntity to go a monkey-shooting. They love the flesh; and, after having skinned the creature, serve it up at a negro feast, where it looks so like a child that none but a negro would endure the sight.

The late Captain Stedman, who was for some years in Surinam, and whose feelings were exceedingly acute, being among the woods, and in want of fresh provisions, shot at two monkeys with the intention of making broth of them; but the de-

struction of one of them was attended with circumstances which made a lasting impression on his mind. "Seeing me," says the captain, "nearly on the bank of the river in a canoe, the creature made a halt from skipping after his companions, and, being perched on a branch that hung over the water, examined me with attention and the strongest marks of curiosity, no doubt taking me for a giant of his own species; while he chattered prodigiously, and kept dancing and shaking the bow on which he rested with incredible strength and agility. At this time I laid my piece to my shoulder, and brought him down from the tree into the stream; but may I never again be witness to such a scene! The miserable animal was not dead, but mortally wounded. I seized him by the tail, and, taking him in both my hands, to end his torment swung him round, and hit his head against the side of the canoe; but the poor creature still continuing alive, and looking at me in the most affecting manner that can be conceived, I knew no other means of ending his murder, than to hold him under the water till he was drowned, while my heart sickened on his account; for his dying little eyes still continued to follow me with seeming reproach, till their light gradually forsook them, and the wretched animal expired. I felt so much on this occasion, that I could neither taste of him nor his companions, when they were dressed, though I saw that they afforded to some others a delicious repast."

There is a species of monkey called the preacher, whose voice is peculiar, and so very loud that it may be heard at a considerable distance. The sound proceeds from a peculiar conformation of the windpipe, in the upper part of which there is a concave bony process, that exceedingly augments the voice. This creature has obtained the name of preacher, from the abominable noise he makes in the woods every morning and evening, when, according to Marcgrave, many of them assemble together; and one taking his station in a tree, above the rest, begins to harangue his brethren in a howl that may be heard at an amazing distance. His audience seem perfectly sensible of the value of the discourse, and remain profoundly silent for some time; at length the whole body cry together, and make the woods resound with their terrible noise, which, however, does not last long before the first speaker resumes the discourse, and after some time the assembly breaks up. These animals will leap from a considerable height, but instead of coming to the ground they will grasp a branch with their tails, and hang swinging to and fro like so many pendulums. Dampier was alarmed by one of them which jumped immediately at him from the branch of a tree under which he was passing; but the monkey caught hold of one of the lower boughs with the tip of his tail, where he continued swinging and making faces at him.

The female monkey brings forth sometimes one, and sometimes two at a birth. If she happens to

be incumbered with two, she carries one on her back and the other in her arms. The little one on her back clasps its hands round her neck and its feet about her middle, and remains so closely attached that nothing can shake it off. When she wishes to suckle it, the two change places, and that which was on the back, takes the breast, while the other occupies its situation.

The monkey tribe feed chiefly upon fruits, the buds of trees, and succulent roots and plants; these the warm and fertile regions they inhabit furnish them in abundance. They, however, do not entirely confine themselves to a vegetable diet, but sometimes eat insects and worms. If they are within reach of the sea-coast, they will descend to the shore and devour what crabs, oysters, or shell-fish they can find. They will manage an oyster with great dexterity, by putting a pebble into the gaping shell, by which it is prevented from closing, and then eating the fish at their leisure.

LEMUR.

GENERIC CHARACTER.

Four cutting teeth in the upper jaw, and six in the lower.
Two canine teeth in each jaw.
Feet formed like hands.

SPECIFIC CHARACTER.

LEMUR TARDIGRADUS.	L. ecaudatus subferrugineus. *Linn. Syst. Nat. Gmel.* 1. p. 41.
	TAILLESS LEMUR, of a pale rusty brown colour.
	Simia unguibus indicis pedum posteriorum longis, incurvis et acutis. *Briss. Quadr.* 190. n. 3.
	TAILLESS MACAUCO. *Penn. Hist. Quadr.* v. 1. p. 227. pl. 49. *Bew. Quadr.* p. 409.
SLOW LEMUR. . . .	*Specul. Linn.* 1. t. 5. *Shaw Gen. Zool.* pl. 29.

THE late learned Sir William Jones has made one of these animals the subject of a very interesting paper, inserted in the fourth volume of the Asiatic Researches. He has there given so just a description of its form, and so pleasing an account of its

manners, that we shall extract the account from that valuable work in the words of the author.

" The singular animal, which most of you saw, and of which I now lay before you a perfectly accurate figure, has been very correctly described by Linnæus; except that sickled would have been a juster epithet than awled for the bent claws on its hinder indices, and that the size of a squirrel seems an improper, because a variable, measure: its configuration and colours are particularized with great accuracy by M. Daubenton; but the short account of the loris by M. de Buffon appears unsatisfactory, and his engraved representation of it has little resemblance to nature *; so little, that when I was endeavouring to find in his work a description of the quadrumane, which had just been sent me from Dacca, I passed over the chapter on the loris, and ascertained it merely by seeing, in a note, the Linnæan character of the slow-paced lemur. The illustrious French naturalist, whom, even when we criticise a few parts of his noble work, we cannot but name with admiration, observes of the loris, that ' from the proportion of its body and limbs, one would not suppose it slow in walking or leaping,' and intimates an opinion that Seba gave this animal the epithet of slow-moving, from some fancied likeness to the sloth of America: but though its body be remarkably long in proportion to the

* Because he has not figured this animal, but the loris, which is a distinct species, although it has till lately been considered as the same.

breadth of it, and the hinder legs, or more properly arms, much longer than those before, yet the loris, in fact, walks or climbs very slowly, and is, probably, unable to leap. Neither its genus nor species, we find, are new; yet, as its temper and instincts are undescribed, and as the Natural History of M. de Buffon, or the System of Nature by Linnæus, cannot always be procured, I have set down a few remarks on the form, the manners, the name, and the country of my little favourite, who engaged my affection while he lived, and whose memory I wish to perpetuate.

" I. This male animal had four hands, each five-fingered; palms naked; nails round, except those of the indices behind, which were long, curved, pointed; hair very thick, especially on the haunches, extremely soft, mostly dark-gray, varied with brown and a tinge of russet; darker on the back, paler about the face and under the throat, reddish towards the rump; no tail, a dorsal stripe, broad chesnut-coloured, narrower towards the neck; a head almost spherical; a countenance expressive and interesting; eyes round, large, approximated, weak in the day-time, glowing and animated at night; a white vertical stripe between them; eye-lashes black, short; ears dark, rounded, concave; great acuteness at night, both in seeing and hearing; a face hairy, flattish; a nose pointed, not much elongated; the upper lip cleft; canine teeth comparatively long, very sharp.

" More than this I could not observe in the

living animal; and he died at a season when I could neither attend a dissection of his body, nor with propriety request my medical friends to perform such an operation—in the heat of August; but I opened his jaw, and counted only two incisors above, and as many below, which might have been a defect in the individual; and it is mentioned simply as a fact, without any intention to censure the generic arrangement of Linnæus.

"II. In his manners he was for the most part gentle, except in the cold season, when his temper seemed wholly changed; and his Creator, who made him so sensible of cold, to which he must often have been exposed even in his native forests, gave him, probably for that reason, his thick fur, which we rarely see on animals in these tropical climates. To me, who not only constantly fed him, but bathed him twice a week in water accommodated to the seasons, and whom he clearly distinguished from others, he was at all times grateful; but when I disturbed him in winter, he was usually indignant, and seemed to reproach me with the uneasiness which he felt, though no possible precautions had been omitted to keep him in a proper degree of warmth. At all times he was pleased with being stroked on the head and throat, and frequently suffered me to touch his extremely sharp teeth: but at all times his temper was quick; and when he was unseasonably disturbed, he expressed a little resentment by an obscure murmur, like that of a squirrel, or a greater degree of displeasure by a

peevish cry, especially in winter; when he was often as fierce, on being much importuned, as any beast of the woods. From half an hour after sunrise to half an hour before sunset, he slept without intermisssion rolled up like a hedge-hog; and as soon as he awoke, he began to prepare himself for the labours of his approaching day, licking and dressing himself like a cat; an operation which the flexibility of his neck and limbs enabled him to perform very completely: he was then ready for a slight breakfast, after which he commonly took a short nap; but when the sun was quite set, he recovered all his vivacity. His ordinary food was the sweet fruit of this country; plantains always, and mangos during the season; but he refused peaches, and was not fond of mulberries, or even of guaiavas: milk he lapped eagerly, but was contented with plain water. In general he was not voracious, but never appeared satisfied with grasshoppers; and passed the whole night while the hot season lasted, in prowling for them: when a grasshopper, or any insect, alighted within his reach, his eyes, which he fixed on his prey, glowed with uncommon fire; and having drawn himself back to spring on it with greater force, he seized the prey with both his fore-paws, but held it in one of them while he devoured it. For other purposes, and sometimes even for that of holding his food, he used all his paws indifferently as hands, and frequently grasped with one of them the higher part of his ample cage, while his three others were severally engaged at the bot-

tom of it; but the posture of which he seemed fondest was to cling with all four of them to the upper wires, his body being inverted; and in the evening he usually stood erect for many minutes, playing on the wires with his fingers, and rapidly moving his body from side to side, as if he had found the utility of exercise in his unnatural state of confinement. A little before day-break, when my early hours gave me frequent opportunities of observing him, he seemed to solicit my attention; and if I presented my finger to him, he licked or nibbled it with great gentleness, but eagerly took fruit when I offered it, though he seldom ate much at his morning repast: when the day brought back his night, his eyes lost their lustre and strength, and he composed himself for a slumber of ten or eleven hours.

" III. The names of loris and lemur will, no doubt, be continued by the respective disciples of Buffon and Linnæus; nor can I suggest any other, since the Pandits know little or nothing of the animal. The lower Hindus of this province generally call it lajjábánor, or the bashful ape, and the Musselmans, retaining the sense of the epithet, give it the absurd appellation of a cat: but it is neither a cat nor bashful; for though a Pandit who saw my lemur by day-light remarked that it was lajjálu, or modest (a word which the Hindus apply to all sensitive plants), yet he only seemed bashful, while in fact he was dimsighted and drowsy; for at night, as you perceive by his figure, he had open eyes, and

as much boldness as any of the lemures poetical or Linnæan.

" IV. As to his country, the first of the species that I saw in India was in the districts of Tipra, properly Tripura, whither it had been brought, like mine, from the Garrow mountains; and Dr. Anderson informs me, that it is found in the woods on the coast of Coromandel: another had been sent to a member of our society from one of the Eastern isles; and though the loris may be also a native of Silan, yet I cannot agree with M. de Buffon, that it is the minute, sociable, and domestic animal mentioned by Thevenot, which it resembles neither in size nor in disposition.

" My little friend was, on the whole, very engaging; and when he was found lifeless, in the same posture in which he would naturally have slept, I consoled myself with believing that he had died without pain, and lived with as much pleasure as he could have enjoyed in a state of captivity."

DOG.

GENERIC CHARACTER.

Six cutting teeth, and two canine, in each jaw.
Five toes before, and four behind; invariable in the wild species.

SPECIFIC CHARACTER.

CANIS FAMILIARIS. C. cauda (sinistrorsum) recurvata. *Linn. Syst. Nat. Gmel.* 1. p. 65.
The tail bent upwards, and towards the left side.

FAITHFUL DOG. . . *Sm. Buff.* v. 4. p. 1. pl. 26—46. *Penn. Hist. Quadr.* v. 1. p. 235. *Bew. Quadr.* p. 296.

DOGS have at least a certain degree of memory. A dog is first taught by repeated trials to know something by a certain mark, and then to distinguish one ace from another; they frequently offer him food on a card he is unacquainted with, after which they send him to find it out from the rest, and he never mistakes. The habit of profiting by that discovery, and receiving caresses, enables him by degrees to grow acquainted with each particular card, and he brings them with an air of gaiety,

and without confusion; and in reality it is no more surprising to see a dog distinguish one card from thirty others, than it is to see him distinguish his master's door from the rest of the neighbourhood. All the ingenious qualities, however, which a dog is capable of acquiring, are not half so valuable as those lively and courageous instances of friendship he discovers for his master; and it is evident that the dog is consigned by Providence to the care of man, that he may serve him both as a companion and a safeguard. His attention is so great, that he seems to watch night and day to preserve his master from being injured by any one. He is acquainted with all that passes, and gives his master intelligence of each particular; but makes no use of the information but what is conformable to his orders.

The services we receive from dogs are as various as their species. The mastiff and the bull-dog guard our houses in the night, and reserve all their malignity for the season wherein people may form bad designs against us. The shepherds' dogs are equally qualified to defend their master's property and discipline the flock. Among the class of sporting dogs, the terrier has very short legs, to enable him to creep under the grass, and dart through brakes and bushes. The greyhound, to facilitate his speed through the air, has received a sharp head and a slender body: his legs, that are so long and spare, stretch over a large space of ground, and in swiftness he even exceeds the hare, whose whole

safety consists in the promptitude and stratagems of her flight. The greyhound is the contrast to the terrier, as well in the structure of his body as in his particular functions; the latter has a weak sight and a fine nose, because he is in greater need of a surer scent than a piercing eye when he buries himself under ground, or forces his way through a thick underwood. On the other hand, the greyhound, who is only useful in the plain, has but an indifferent nose; but then he never fails to see and distinguish his prey at a distance through all her doublings. The setting-dog stops and crouches down when he sees the game, to give his master notice of the discovery. There are several sorts of these dogs, whose names vary according to their qualifications; but they are all equally zealous and faithful in accomplishing the service prescribed them. The master, who is seldom satisfied with those friends who accompany him, and are irregular at the sport, is however charmed with the capacity and understanding of all his dogs. At the conclusion of the chase, and the short satisfaction of the carnage, which is not always granted them, they all return to the kennel and the string; they then forget their fierceness, make a gay surrender of their liberty, and without murmuring submit to the coarsest food. In a word, among all these various domestics who are so submissive and devoted to our interest, there are none, even down to the spaniels and the Danish breed, but what render themselves agreeable by their sprightliness, valua-

ble by their assiduity, and sometimes beneficial by a seasonable intimation given to their master in his slumbers. An instance which occurred near Hammersmith, in the year 1760, will place their use in this respect in a very strong light. While a man of the name of Richardson, a waterman of that place, was sleeping in his boat, the vessel broke from her moorings, and was carried by the tide under a west-country barge. Fortunately for the man his dog happened to be with him; and the sagacious animal awaked him by pawing his face, and pulling the collar of his coat, at the instant the boat was filling with water; he seized the opportunity, and thus saved himself from otherwise inevitable death.

The Kamtschatkans, Eskimaux, and Greenlanders, strangers to the softer virtues, treat these poor animals with great neglect. The former, in the summer season, when the dogs are no longer of service, turn them loose to seek a living for themselves, and care no more about them till the approach of winter; when they are recalled to their usual confinement and labour. Mr. Pennant observes, that from October till the spring they are fed with nothing but fish bones and *opana*; that is, putrid fish preserved in pits, and served up to them mixed with hot water. The Greenlanders are not better masters: they leave their dogs to feed on muscles or berries; unless they happen to be particularly fortunate in catching seals, when, by way of an extraordinary luxury, they treat the poor crea-

tures with the blood and garbage. The natives are highly indebted to their dogs, which serve them in the place of horses. They are fastened by the Greenlanders to their sledges, who are thus enabled to pay their visits in savage state, and to bring home the animals they have killed; sometimes loading their carriage with five or six large seals; and even with this weight in addition to their master, will the indefatigable creatures travel over the ice sixty miles in a day. The sledges, says an intelligent writer, are usually drawn by five dogs, four of them yoked two and two abreast; the foremost acts as a leader to the rest. The reins being fastened to a collar round the leading dog's neck, are of little use in directing the pack; the driver depending chiefly upon their obedience to his voice, with which he animates them to proceed. Great care and attention are consequently used in training up those for leaders, which are valued according to their steadiness and docility; the sum of forty rubles, or ten pounds, being no unusual price for one of them. The rider has a crooked stick, answering the purpose both of whip and reins; with which, by striking on the snow, he regulates the speed of the dogs, or stops them at his pleasure. When they are inattentive to their duty, the charioteer often chastises them, by throwing this stick at them. In picking it up again the Greenlander shows a great deal of dexterity: and, in truth, it is highly necessary that he should be expert in this most difficult part of his exercise; for the moment

the dogs find that the driver has lost his stick, unless the leader is both steady and resolute, they immediately set off at full speed, and continue to run till their strength is exhausted, or till the carriage is overturned and dashed to pieces, or hurried down a precipice and buried in the snow.

The Greenland dogs live a very hardy life, sleeping constantly abroad, where they make a lodge in the snow, in which they lie completely covered except their noses.

The wild dogs which are found in desert and depopulated countries, do not differ materially from wolves, if we except the facility with which they may be tamed. The wild dogs of America are of the domestic race, and were transported thither from Europe. Some of them have been abandoned in these deserts, where they have multiplied so prodigiously that they spread over the inhabited countries in great packs, attack the domestic cattle, and even insult the natives, who are obliged to disperse and kill them like other ferocious animals. Wild dogs, though they have no knowledge of man, when approached by him with gentleness, will soon soften, become familiar, and remain attached to their masters. But the wolf, though taken young, and brought up in the house, is gentle when a mere cub only, never loses his taste for prey, and sooner or later indulges his inclination for rapine and destruction.

The Count de Buffon reared a she wolf, taken in the woods at the age of three months, along with

an Irish greyhound of the same age. They were shut up together in a pretty large court, to which no other beast could have access, and where they were provided with a shelter for their retirement. They were equally strangers to any individual of their own species, and knew no person but the man who gave them their victuals. They were kept in this state three years without the smallest restraint. During the first year they played perpetually, and seemed to be extremely fond of each other. The second year they began to quarrel about their food, though they were supplied in a plentiful manner. The wolf always began the dispute. When meat and bones were given them on a large wooden dish, the wolf, instead of seizing the meat, instantly drove off the dog, then laid hold of the edge of the plate so dexterously as to allow nothing to fall, and carried off the whole. I have seen her, says the Count, run in this manner with the dish between her teeth, five or six times round the wall, and never set it down, unless to take breath, to devour the meat, or to attack the dog when he approached. The dog was stronger than the wolf; but as he was less ferocious, fears were entertained for his life, and therefore he was furnished with a collar. After the second year, these quarrels and combats became more frequent, and more serious, and a collar was also given to the wolf, whom the dog now handled more roughly than before. At the end of the third year they began to feel all the ardour of passion; but discovered no marks of

love. This condition, instead of softening and making them approach each other, rendered them more untractable and ferocious. Nothing now was heard but dismal howlings and cries of resentment. In three weeks they were both very meagre; but never approached except to tear each other. At last they fought so cruelly that the dog killed the wolf. The dog was shot some days after, for as soon as he was set at liberty he sprung with fury upon poultry, dogs, and even men.

We shall conclude the account of these animals with a few interesting anecdotes respecting their sagacity; extracted from different authors.

In December, 1784, a dog was left by a smuggling vessel near Boomer, on the coast of Northumberland. Finding himself deserted, he began to worry sheep, and did so much damage, that he became the terror of the country within a circuit of above twenty miles. When he caught a sheep he bit a hole in its right side, and, after eating the tallow about the kidneys, left it. Several of them, thus lacerated, were found alive by the shepherds; and, being taken proper care of, some of them recovered, and afterwards had lambs. From his delicacy in this respect, the destruction he made may in some measure be conceived; as it may be supposed that the fat of one sheep in a day would hardly satisfy his hunger. The farmers were so much alarmed by his depredations, that various means were used for his destruction. They frequently pursued him with hounds, greyhounds,

&c.; but when the dogs came up with him, he laid down on his back as if supplicating for mercy; and in that position they never hurt him: he therefore lay quietly, taking his rest till the hunters approached, when he made off without being followed by the hounds, till they were again excited to the pursuit, which always terminated unsuccessfully. And it is worthy of notice that he was one day pursued from Howick to upwards of thirty miles distance; but returned thither and killed sheep the same evening. His constant residence, during the day, was upon a rock, on the Heughhill, near Howick, where he had a view of four roads that approached it; and in March 1785, after many fruitless attempts, he was at last shot there.

Old Daniel, gamekeeper to the Rev. Mr. Corsellis, had reared a spaniel, which became so fond of him as to be his constant attendant both by night and day. Wherever the gamekeeper appeared, *Dash* was never far distant; and in his nocturnal excursions to detect poachers, this dog was of infinite use to him. At these times the dog altogether neglected the game; but if a strange foot had entered any of the coverts, *Dash*, by a different whine, informed his master that the enemy were abroad. Many poachers were detected and caught, from this singular intelligence.

During the last stage of a consumption, which carried his master to the grave, *Dash* unwearily attended the foot of his bed; and when he died the

dog would not quit the body, but lay upon the bed by its side. It was with difficulty he was tempted to eat any food; and although after the funeral he was taken to the house of Mr. Corsellis, and caressed with all the tenderness which so fond an attachment naturally excited, he took every opportunity to steal back to the room in the cottage where the gamekeeper breathed his last, and where he would remain for hours. From thence, for fourteen days, he constantly visited the grave; at the end of which time he died, notwithstanding all the kindness and attentions that were shown him.

M. d'Obsonville had a mastiff which he had brought up in India from two months old, and which accompanied himself and a friend from Pondicherry to Benglour, a distance of more than three hundred leagues. Their journey occupied nearly three weeks; and they had to traverse plains and mountains, to ford rivers, and go along several by-paths. The animal, which, M. D'. assures us, had never been in that country before, lost them at Benglour, and immediately returned to Pondicherry. The dog went directly to the house of M. Beylier, then commandant of artillery, the friend of our author, and with whom he had generally lived. It is not difficult to know how the dog subsisted on the road, (for he was very strong, and able to procure himself food) but it shows an astonishing effort of memory in the animal, who, without being accustomed to the road, could retrace his way after an interval of more than a month.

The following story being inserted in Dibdin's Observations in a Tour through England, we have ventured, upon his authority, to relate it, though at the same time we must confess our infidelity.

At a convent in France, twenty paupers were served with a dinner at a certain hour every day. A dog belonging to the convent did not fail to be present at this regale, to receive the odds and ends which were now and then thrown down to him. The guests, however, were poor and hungry, and of course not very wasteful; so that their pensioner did little more than scent the feast of which he would fain have partaken. The portions were served by a person at the ringing of a bell, and delivered out by means of what in religious houses is called a *tour*; which is a machine like the section of a cask, that, by turning round upon a pivot, exhibits whatever is placed on the concave side, without discovering the person who moves it. One day, this dog, who had only received a few scraps, waited till the paupers were all gone, took the rope in his mouth, and rang the bell. His stratagem succeeded. He repeated it the next day with the same good fortune. At length the cook, finding that twenty-one portions were given out instead of twenty, was determined to discover the trick; in doing which he had no great difficulty; for, lying *perdu*, and noticing the paupers as they came in great regularity for their different portions, and that there was no intruder except the dog, he

began to suspect the real truth; which he was confirmed in when he saw him wait with great deliberation till the visitors were all gone, and then pull the bell. The matter was related to the community; and, to reward him for his ingenuity, he was permitted to ring every day for his dinner; when a mess of broken victuals was purposely served out to him.

WOLF.

SPECIFIC CHARACTER.

CANIS LUPUS. C. cauda incurvata. *Linn. Syst. Nat. Gmel.* 1. p. 70.
Tail bent inwards.
Canis ex griseo flavescens. *Briss. Quadr.* p. 170.
WOLF. . . *Sm. Buff.* 4. p. 196. pl. 67. *Penn. Hist. Quadr.* 1. p. 248. n. 159. *Arct. Zool.* 1. p. 38. *Shaw Gen. Zool.* pl. 75. *Bew. Quadr.* p. 285.

THE wolf is naturally savage, but he is at the same time cowardly; and although when pressed by hunger he will attack even man himself, yet if he happens to be taken in a pit-fall, he is immediately intimidated, and rendered, from fear, incapable of resistance. In this situation a person may safely go in, put a collar about his neck, and drag him from the hole. A strong natural antipathy exists between the wolf and the dog: their dispositions are very opposite, though in external appearance they are so much alike. A young dog trembles at the first glance of a wolf; and even his smell, though new and unknown, excites such an aversion in the puppy that he flies from it, and comes quivering to the feet of his master.

These animals inhabit Europe, Asia, and America, but are not known in Africa. To the northward they stretch as far as Kamtschatka, and even as high as the arctic circle. Pennant tells us that in the more uninhabited parts of the country they go in great droves, and with a hideous noise hunt the deer like a pack of hounds; they will sometimes venture to attack a straggling buffalo: their supplies frequently fail, and they become so poor and hungry as to go into a swamp and fill themselves with mud, which, we are assured, they will disgorge as soon as they can get any food. "Wolves are now so rare," says Mr. Pennant, "in the populated parts of America, that the inhabitants leave their sheep the whole night unguarded: yet the governments of Pennsylvania, and New Jersey, did some years ago allow a reward of twenty shillings, and the last even thirty shillings, for the killing of every wolf. Tradition informed them what a scourge those animals had been to the colonies; so they wisely determined to prevent the like evil. In their infant state, wolves came down in multitudes from the mountains, often attracted by the smell of the corpses of hundreds of Indians who died of the small-pox, brought among them by the Europeans: but the animals did not confine their insults to the dead, but even devoured in their huts the sick and dying savages."

It seems that wolves abounded in England during the time that the Saxons governed the kingdom, since we find king Edgar attempting to extirpate

them by converting the tax of gold and silver which the Welsh used to pay him, into an annual tribute of three hundred wolves' heads. This, however, failed of the desired effect; for, some centuries afterwards, Edward the First commanded them to be destroyed in the several counties of Gloucester, Worcester, Hereford, Salop, and Stafford; and if we look back to the reign of Athelstan, we shall find the wolves so formidable in Yorkshire that it was thought necessary to build a retreat at Flixton in that county, *to defend passengers from the wolves, that they should not be devoured by them.* In the year 1680, the famous Sir Ewan Cameron killed one of these animals in Scotland; which is supposed to have been the last that remained in the country, as Mr. Pennant has since travelled through every part of it, without being able to learn that there remained even the memory of those animals among the oldest people.

The female wolves bring forth their young in the most retired parts of the forest, where they search for a concealed spot, and make it smooth and even by cutting and tearing up all the brambles with their teeth. When the place is properly prepared, they bring great quantities of moss and make a commodious bed for their young. They generally bring forth five or six at a time; sometimes eight or nine, but never less than three. They are born blind, like the dogs, and, after being suckled for some weeks, are taught by the mother to eat flesh, which she prepares for them by tearing it into

small pieces. Their savage dispositions are at this time cultivated by the parent, who brings them different living animals, such as young hares, partridges, and fowls, which they are allowed to play with and worry till the mother thinks fit to tear them in pieces, and give a part to each of her young. The female constantly attends them till their education is finished, till they are strong enough to do without her assistance or protection, and have acquired talents fit for rapine.

In the immense forests of Germany, where wolves are very numerous, the following, among other methods, is employed to destroy them. In the most retired part of the forest, a large piece of carrion is suspended to the branch of a tree, having previously made a train of some miles long, with small bits of putrid flesh placed at certain intervals to entice the wolves to the spot. The hunters then wait till it is dark, and approach the place very cautiously that they may not disturb the wolves, whom they often find busily employed in attempting to get at the food which is placed just without their reach. While thus engaged, the hunters, who are provided with fire-arms, have full time to dispatch them.

The wolf possesses so exquisite a sense of smelling, that the odour of carrion is said to strike him at the distance of a league. When he issues from the wood, says Buffon, he never loses the wind. He stops upon the borders of the forest, smells on all sides, and receives the emanations of living or

dead animals brought to him from a distance by the wind. He devours the most putrid carcases, though he prefers the living to the dead; and, according to Buffon, is so fond of human flesh that were he stronger he would, perhaps, eat no other. It is for this reason he follows armies to the field of battle, and disinters the slain; when once accustomed to this food, he prefers it to all others, and devours it with insatiable avidity.

Hunting the wolf is a favourite diversion in some parts of Europe, and is followed by a number of people, who assemble together, provided with dogs, and trace out the wolf by the print of his feet: the age is guessed by the mark he leaves on the ground; for the older the wolf the larger the track. Besides the other dogs, it is necessary to have a good blood-hound to start the wolf; and when he falls upon the scent, he must be encouraged by every art the huntsman can use, or his natural aversion to the animal will get the better of his duty, and he will refuse to proceed. When the wolf is raised, the gre-hounds are let loose in pairs. The first pair is sent after him in the beginning, seconded by a man on horseback; the second about half a mile further; and the third pair when the rest of the dogs come up with, and begin to bait him. Notwithstanding the united efforts of the dogs, he often maintains his ground against them for a considerable time, and makes some of the boldest repent the attack. At length, however, his strength fails him, he is reduced to the last extremity, and the

hunters complete the business by stabbing him with their daggers.

When very young, that is, during the first year, wolves are very docile, and even caressing; they are quiet, and may be kept with poultry and other animals without doing any mischief: but this good humour only lasts about a year and a half, when their natural ferocity returns, and they can no longer be suffered to remain at large. "I reared one till the age of eighteen or nineteen months," says Buffon, "in a court along with fowls, none of which he ever attacked; but for his first essay he killed the whole in one night, without eating any of them. Another, having broken his chain, ran off, after killing a dog with whom he had lived in great familiarity. I kept a she wolf three years in a large court; and though shut up, when very young, along with a gre-hound of the same age, she would never suffer him to approach her. She provoked, she attacked, she bit the dog, who at first only defended himself; but at last he worried her *."

The wolf grows gray as he grows old, and when dead is only valuable on account of his skin, which makes a warm durable fur. The rankness of his flesh is so great that it is rejected by all other animals, and nothing but a wolf will eat a wolf. His breath is abominably offensive, and his ap-

* See the history of the dog for a particular account of this transaction.

petite so voracious, that he has been known to appease his hunger by swallowing any indigestible stuff he can find, such as bones, hair, and skins half tanned, which he will reject from his stomach when he can procure better food. To sum up his character, in a word: his aspect is base and savage, his voice dreadful, his odour insupportable, his disposition perverse, his manners ferocious: odious and destructive when living, and, when dead, almost perfectly useless.

FOX.

SPECIFIC CHARACTER.

VULPES LAGOPUS. C. cauda recta, palmis plantisque pilosissimis. *Linn. Syst. Nat. Gmel.* 1. p. 75.
The tail straight; all the feet remarkably hairy.
Canis hieme albus, æstate ex cinereo cærulescens. *Briss. Quadr.* p. 174.
α. VULPES ALBA. *Kalm. Bahus.* 236.
β. VULPES CÆRULESCENS. *Faun. Suec.* 14.

ARCTIC FOX. . . *Penn. Hist. Quadr.* 2. p. 255. pl. 51. *Penn. Arct. Zool.* v. 1. p. 42. n. 10. *Bew. Quadr.* p. 283.

THE observation of Mr. Pennant, that these animals have been known to stand by while the trap was baiting, and instantly after put their heads into it, reminds us of the ingenuity of Sidrophel:

> "He made a planetary gin,
> Which rats would run their own heads in,
> And come on purpose to be taken,
> Without the expense of cheese or bacon."

These hardy creatures are found only in the Arctic regions, where they brave the inclemency of the seasons; and even in the extreme bitterness

of a Spitsbergen winter they have been seen prowling about in search of prey. Their principal food consists of water-fowl, or their eggs; of hares, or any lesser animals. And they are so voracious, when pressed by hunger, that when Beering, after suffering great hardships at sea, landed his men on the island that goes by his name, the foxes mangled the dead before they could be buried, and were even not afraid to approach the helpless sick, and smell to them like dogs.

The ears of the Arctic fox, which are short and rounded, are almost hid in the fur. The long soft and silky hair with which the animal is covered, is sometimes blueish gray, and sometimes white. The toes are entirely covered with a thick fur, and the tail is shorter and more bushy than that of the common fox.

Steller, who resided for some time in the midst of these animals, has given us the fullest account of their manners, though his description appears to be a little overstrained.

"During my unfortunate abode," says Steller, "on Beering's island, I had but too many opportunities of studying the nature of these animals; which far exceed the common fox in impudence, cunning, and roguery. The narrative of the innumerable tricks they played us might vie with Albertus Julius's History of the Apes on the island of Saxenbourg.

"They forced themselves into our habitations by night as well as by day, stealing all that they could

carry off; even things that were of no use to them, as knives, sticks, and clothes. They were so extremely ingenious as to roll down our casks of provisions several *poods* (each pood is equal to forty Russian pounds) in weight; and then steal the meat out with such skill, that at first we could not bring ourselves to ascribe the theft to them. While employed in stripping an animal of its skin, it has often happened that we could not avoid stabbing two or three foxes, from their rapacity in tearing the flesh out of our hands. If we buried it ever so carefully, and even added stones to the weight of earth that was upon it, they not only found it out, but with their shoulders pushed away the stones, by lying under them, and in this way helping one another. If, in order to secure it, we put any animal on the top of a high post in the air, they either dug up the earth at the bottom, and thus tumbled the whole down, or one of them climbed up, and with incredible artifice and dexterity threw down what was upon it.

" They watched all our motions, and accompanied us in whatever we were about to do. If the sea threw up an animal of any kind, they devoured it before we could arrive to rescue it from them: and if they could not consume the whole of it at once, they trailed it in portions to the mountains, where they buried it under stones before our eyes, running to and fro so long as any thing remained to be conveyed away. While this was doing, others stood on guard and watched us. If they saw any

one coming at a distance, the whole troop would combine at once, and begin digging all together in the sand, till even a beaver, or sea-bear, in their possession, would be so completely buried under the surface that not a trace of it could be seen. In the night-time, when we slept in the field, they came and pulled off our night-caps, and stole our gloves from under our heads, with the bear coverings and the skins that we lay upon. In consequence of this we always slept with our clubs in our hands, that if they awoke us we might drive them away, or knock them down.

"When we made a halt to rest by the way, they gathered around us, and played a thousand tricks in our view; and when we sat still, they approached us so near that they gnawed the thongs of our shoes. If we lay down as if intending to sleep, they came and smelt at our noses, to find whether we were dead or alive. On our first arrival, they bit off the noses, fingers, and toes of our dead, while we were preparing the grave; and thronged in such a manner about the infirm and sick, that it was with difficulty we could keep them off.

"Every morning we saw these audacious animals patrolling about among the sea-lions and sea-bears lying on the strand; smelling at such as were asleep, to discover whether some of them might not be dead: if that happened to be the case, they proceeded to dissect him immediately, and soon afterwards all were at work in dragging the parts away. Because the sea-lions in their sleep some-

times overlay their young, the foxes every morning examined the whole herd of them, one by one, as if conscious of this circumstance; and immediately dragged away the dead cubs from their dams.

"As they would not suffer us to be at rest either by night or day, we became so exasperated against them that we killed them young and old, and harassed them by every means we could devise. When we awoke in the morning, there always lay two or three that had been knocked on the head the preceding night; and I can safely affirm, that, during my stay upon the island, I killed above two hundred of these animals with my own hands. On the third day after my arrival, I knocked down with a club, within the space of three hours, upwards of seventy of them, and made a covering to my hut with their skins. They were so ravenous, that with one hand we could hold to them a piece of flesh, and with a stick or axe in the other could knock them down.

"From all the circumstances that occurred during our stay, it was evident that these animals could never before have been acquainted with mankind; and that the dread of man is not innate in brutes, but must be grounded on long experience.

"Like the common foxes, they were the most sleek and full of hair in the months of October and November. In January and February the growth of this was too thick. In April and May they began to shed their coat; in the two following months they had only wool upon them, and appeared as if

they went in waistcoats. In June they dropped their cubs, nine or ten at a brood, in holes and clefts of the rocks. They are so fond of their young, that, to scare us away from them, they barked and yelled like dogs; by which they betrayed their covert: but no sooner did they perceive that their retreat was discovered, than (unless they were prevented) they dragged the young away in their mouths, and endeavoured to conceal them in some more secret place. On one of us killing the young, the dam would follow him with dreadful howlings, both day and night, for a hundred or more versts; and would not even then cease till she had done him some material injury, or was herself killed by him.

" In heavy falls of snow these animals bury themselves in that substance, where they live as long as it continues of a sufficient depth. They swim across the rivers with great agility. Besides what the sea casts up, or what is destroyed by other beasts, they seize the water-fowl, by night, on the cliffs where it has settled to sleep; but, on the contrary, they are themselves frequently victims to the birds of prey. Though now found in such numbers on this island, they were probably conveyed thither from the continent, on the drift-ice; and being afterwards nourished by the great quantity of animal substances thrown ashore by the sea, they became thus enormously multiplied."

Arctic foxes live in the clefts of rocks, and in caverns; they likewise burrow in the earth, and

form holes many feet in length, strewing the bottom with moss. Two or three inhabit the same hole. In Lapland, and the northern parts of Asia, these animals feed principally upon the Leming rat, a little migratory animal that occasionally leaves its country to seek an existence elsewhere. This accounts for the desertion of the foxes, who sometimes are gone for three or four years, and are probably in search of their prey. Their skins form an article of traffic, and many come from Greenland, where the natives have various ways of catching them. They are either taken in pit-falls dug in the snow and baited with fish, or in springs made with whalebone laid over a hole in the snow, and the bottom baited in the same manner; or in traps, made like little huts, with flat stones, so contrived that, when the fox enters and takes the bait, one of them falls upon him and prevents his retreat. The blue furs are the most costly.

The manners of the fox are nearly the same in all countries: full of craftiness and address, they will execute that by cunning which the larger animals accomplish by force. Our common species, which is too well known to the farmers of this country, does not fall short in roguish abilities, and will listen to the crowing of cocks and the cries of poultry, till a proper opportunity offers of carrying a few of them off. He is equally attentive to the nets of the bird-catcher, which he will visit every morning, and remove the birds that are entangled to a secret spot, where he will hide them for two or

three days, unless he finds it necessary to satisfy his appetite at the time. Whenever he finds himself pursued, he runs to his hole, from whence he is either dug out, or driven by the terriers. When he is hunted merely for the sake of the sport which he affords, his hole is carefully stopped by the hunters before the chase begins; so that the poor animal is completely shut out, and has only his speed and cunning to depend upon for his safety. He generally runs straight forwards before the hounds, and as his scent is very strong the dogs follow with great eagerness. The chase has been known to continue for ten hours together, without any of the party having the plea of necessity on his side, except the fox:—a sufficient proof that there must be a degree of pleasure derived from the amusement, which can only be felt by a true fox-hunter.

From Mr. Pennant we learn that there are three varieties found in the mountainous parts of these islands, which differ a little in form, but not in colour, from each other. They are distinguished in Wales by as many different names. The malgi or gre-hound fox is bolder and larger than the others, and will attack a grown sheep or wether: the mastiff fox is less, but more strongly built; and the corgi, or cur fox, which is the least, is the sworn enemy of poultry, and lurks about hedges, out-houses, &c. The first of these varieties has a white tag or tip to the tail: the last a black.

JACKALL.

SPECIFIC CHARACTER.

CANIS AUREUS. Cauda recta, corpore pallide fulvo. *Linn. Syst. Nat. Gmel.* 1. p. 72.
Tail straight, body of a tawny yellow colour.

JACKALL. . . *Sm. Buff.* v. 7. p. 255. pl. 241. *Penn. Hist. Quadr.* v. 1. p. 261. *Bew. Quadr.* p. 292. *Shaw Gen. Zool.* pl. 79.

THESE animals are found in almost every part of Asia, and in most parts of Africa from Barbary to the Cape of Good Hope. They very much resemble the fox in the form of the body; but the head is not so long, and they have a blunter nose. The legs are longer than those of the fox, and the body is more compressed. They are represented as great thieves, and bold enough to enter a tent, and steal whatsoever they can find from the sleeping traveller. They hunt in packs of forty, fifty, or even two hundred, and continue like hounds in full cry from evening until morning. Their voracity is so great, that when prey is scarce they will eat the most infected carrion; and will even scratch up the dead, and devour the putrid carcases. To prevent the depredations of the jackalls the in-

habitants make their graves very deep. The howlings of a pack of them in the night-time must be very dreadful, if we may be allowed to judge from the one in Exeter Change, whose lengthened howl joined with a sort of bark exceeds the noise of all the other beasts. The length of the jackall is about thirty inches, not including the tail, which measures nearly a foot: he stands from the ground rather more than eighteen inches; and he is rather higher behind than before.

In Barbary the jackall is called thaleb, and is thus described by M. Sonnini: "His hair is of a bright fawn colour, deeper on the upper than the under part of the body. He is particularly remarkable for his large tail, striped transversely with black and gray. His eyes are as lively as his motions. In the height of day he approaches the habitations of men, establishing near them his subterraneous abode, which he carefully conceals under thick bushes; thence creeps out without noise, surprises the poultry, carries off the eggs, and leaves no other traces of the havock he has made than the havock itself.

"Taking one day a contemplative walk in the garden," continues Sonnini, "I stopped near a hedge: a thaleb, who heard no noise, was coming towards me through the hedge, and, on his getting out, he found himself close at my feet. On seeing me, he was so struck with astonishment, that he did not even attempt to escape, but, fixing his eyes upon me, remained motionless for some seconds.

His embarrassment was painted in his countenance, in a manner of which I could not have conceived him susceptible, and which indicated a very delicate instinct. For my part, I was afraid to make any motion that might disturb this situation, which afforded me considerable pleasure. At length, after taking a few steps from one side to the other, as if not knowing which way to fly, still keeping his eyes turned towards me, he made off, not running, but stretching himself out, or rather creeping away, placing his feet alternately with singular precaution. He was so much afraid of letting himself be heard in his flight, that he held his large tail almost in a horizontal position, that it might neither drag on the ground, nor brush against the plants. On the other side of the hedge I found the remains of his meal; it was a bird of prey, which he had nearly devoured."

He is said to display so much agility and artifice in hunting of birds, that scarcely any of them can escape him.

STRIPED HYENA.

Designed by W. Daniell.

Published by Mess.rs Cadell & Davies, London, March 1, 1807.

HYÆNA.

SPECIFIC CHARACTER.

CANIS HYÆNA. C. cauda recta, pilis cervicis erectis, auriculis nudis, pedibus tetradactylis. *Linn. Syst. Nat. Gmel.* 1. p. 71.

Tail straight, hair erect on the neck, ears naked; four toes on each foot.

Taxus porcinus sive hyæna veterum. *Kæmpfer. Amœnit. Exot.* p. 411. t. 407. f. 4.

STRIPED HYÆNA. *Sm. Buff.* v. 5. p. 226. pl. 128. *Penn. Hist. Quadr. ed.* 3. v. 1. p. 270. *Bew. Quadr.* p. 271. *Shaw Gen. Zool.* pl. 78.

WHEN Mr. Pennant visited the Tower in the year 1792, he saw two young hyænas, not above half a year old, that were quite tame and inoffensive. He likewise mentions one in the possession of Mr. Brooks, that was as quiet as a dog; and Buffon saw one at the fair of St. Germain, in the year 1773, which was so remarkably gentle that it frequently played with its keeper; who, to astonish the spectators, would occasionally put his hand into the animal's mouth, without the least apprehension of danger. These are merely quoted as instances of exception to the received opinion of their untameable nature; not intended to alter our ideas of

the natural disposition of the animal, which is fierce, cruel, and rapacious.

The hyæna which we saw in the collection at Exeter Change was about the size of a large dog, but of a much more compact and muscular form. The hair upon the body was long and coarse; but the most remarkable part was the bristly mane, which extended from the head to the end of the tail, and was constantly erected whenever the animal was provoked. Long dark-coloured stripes, beautifully disposed in waves, ornamented its back and sides, making us some amends for the horrid glare of its eyes, which we could not contemplate without a mingled sensation of detestation and terror. This animal has lived in the menagerie for the last six years, in perfect health, notwithstanding the rough usage it daily receives from its keeper, who is not sparing of his blows whenever the company wish to see it enraged. The average allowance of food is four pounds of shin of beef a day, which it devours at different times with a most voracious appetite. The hyæna is lower behind than it is before, and when feeding constantly erects the bristles on its back, contracts itself as much as possible, shows its white teeth, and looks truly formidable.

It is remarkable that this animal is completely covered with hair, except on the ears, which are bare.

The hyæna is a savage, unsociable, and solitary animal; it resides in dark caverns, in the clefts of

rocks, or in some gloomy retreat excluded from the light; where it remains till the darkness is sufficient to favour its cruel and rapacious deeds. It then rushes from its hiding-place, ravages the sheepfold, and destroys every thing within its reach with the most insatiable voracity. It inhabits Asiatic Turkey, Syria, Persia, and Barbary; and is such a plague in Abyssinia that Mr. Bruce informs us Gondah was full of them from the time it became dark till the dawn of day. It is customary for this animal to seek its food in the midst of towns and cities. In those warm climates, where animal substances soon become putrid, and where the inhabitants very frequently leave parts of slaughtered carcases exposed in the streets without burial, the hyæna is evidently of service; since, by removing the nuisance, it not only rids the people of an offensive sight, but at the same time secures them againt the pestilential effluvia which would soon arise from the dead bodies. "Many a time in the night," says Mr. Bruce, who was then residing at Gondah, "when the king had kept me late in the palace, and it was not my duty to lie there, in going across the square from the king's house, not many hundred yards distant, I have been apprehensive they would bite me in the leg. They grunted in great numbers about me, though I was surrounded with several armed men, who seldom passed a night without wounding or slaughtering some of them."

A very unwelcome visit which one of these bold

creatures paid Mr. Bruce, he describes in the following words:

"One night in Maitsha, being intent on observation, I heard something pass behind me towards the bed, but upon looking round could perceive nothing. Having finished what I was then about, I went out of my tent, resolving directly to return; which I immediately did, when I perceived two large blue eyes glaring at me in the dark. I called upon my servant with a light; and there was the hyæna standing nigh the head of the bed, with two or three large bunches of candles in his mouth. To have fired at him, I was in danger of breaking my quadrant or other furniture; and he seemed, by keeping the candles steadily in his mouth, to wish for no other prey at that time. As his mouth was full, and he had no claws to tear with, I was not afraid of him, but with a pike struck him as near the heart as I could judge. It was not till then he showed any sign of fierceness; but upon feeling his wound, he let drop the candles, and endeavoured to run up the shaft of the spear to arrive at me; so that, in self-defence, I was obliged to draw out a pistol from my girdle and shoot him, and nearly at the same time my servant cleft his skull with a battle axe."

This gentleman assures us, that in Barbary the hyæna is such a coward in the day-time, that the hunters, when his cave is large enough to give them admittance, take a torch in their hand, and go straight to him; when pretending to fascinate him

by a senseless jargon of words which they repeat, they throw a blanket over him, and hawl him out.

Superstition, which has ever influenced the human mind, has been active in assigning to the hyæna properties which never existed but in the imaginations of the antients. They believed that it changed its sex; that it imitated the human voice; that it had the power of charming shepherds, and of riveting them to the place where they stood: even at the present day, whenever the Arabs kill one of them, they carefully bury the head, lest it should be applied to magical purposes.

THE SPOTTED HYÆNA,

Known at the Cape of Good Hope by the name of the tiger-wolf, has not been many years distinguished by naturalists from the striped species. Its habits are the same, and its disposition equally rapacious, cruel, and mischievous. It differs from the other in being spotted instead of streaked, in the mane and hair on the body being much shorter, and in having short hairy ears.

This creature is described as very strong and voracious. It prowls about for its prey, sending forth the most hideous yells every night; and the howlings of a number of them are dreadful and alarming beyond description.

The hyæna will follow cattle for several days, taking the advantage of the nights for seizing its prey: a gentleman who lately returned from his travels into the interior of Africa, showed us the skull of one which he shot after it had followed their party for some time, and destroyed several bullocks. "One evening," says Dr. Thunberg, "we had turned our oxen out to graze in the plain, but not far from the farm. The evening was darker than usual; the dogs made a terrible noise, and the whole herd of oxen thronged towards the house, without our being able, as the night was so dark, to go to their assistance with fire-arms. In the morning we found that the cattle had been pursued by a tiger-wolf, and that one of our oxen had been bit in the groin, and a portion of the skin six inches broad had been torn away, but that the intestines did not hang out, nor were they otherwise hurt."

Since the introduction of fire-arms, these animals have been less daring; for it appears that formerly their undaunted ferocity led them to enter the very huts of the Hottentots, and sometimes carry off their children. Numbers of them are known frequently to attend in the night-time about the shambles at the Cape, for the sake of the bones and offal that are left there by the inhabitants; and they prove themselves such active scavengers, that not a vestige of any thing which can possibly be devoured is to be found in the morning. It is singular that the dogs, who are their sworn enemies

at all other times, should not then molest them; and we are assured, that although fed in the very heart of the town, they have seldom been known to do any mischief there.

We shall conclude this account with a pleasant story related by Dr. Sparrman; for the truth of which, however, he does not pretend to vouch; and if he did, we fear that some of his readers would be rude enough to doubt it.

"One night, at a feast near the Cape, a trumpeter who had got himself well filled with liquor, was carried out of doors in order to cool and sober him. The scent of him soon attracted a tiger-wolf, which threw him on his back, and dragged him along with him like a corpse, and consequently a fair prize, up towards Table mountain. Mean time, however, our drunken musician awaked, sufficiently sensible to know the danger of his situation, and to sound the alarm with his trumpet, which he carried fastened to his side. The wild beast, as may easily be imagined, was not less frightened in his turn, and the trumpeter escaped."

It has been very properly remarked, that any but a trumpeter, in such a situation, would have furnished the animal with a supper.

CAT.

GENERIC CHARACTER.

Six cutting teeth, and two canine, in each jaw.
Tongue covered with rough prickles pointing backwards.
Claws sharp and hooked, capable of being extended or drawn in at pleasure.
Head round, and visage short.

LION.

SPECIFIC CHARACTER.

FELIS LEO. F. cauda elongata, corpore helvolo. *Syst. Nat. Linn. ed. Gmel.* 1. p. 75.
Tail long and flocky; body of a pale reddish colour.
Felis cauda in floccum desinente. *Briss. Quadr.* p. 194.

LION. . . *Sm. Buff.* v. 5. p. 64. pl. 110. *Penn. Hist. Quadr. ed.* 3. 1. p. 274. *Bew. Quadr.* 179. *Shaw Gen. Zool.* pl. 81. 82.

"WE found encamped on the borders of the salt-water lake, a farmer and his whole family, consisting of sons and daughters, and grandchildren; of oxen, cows, sheep, goats, and dogs. He was moving to a new habitation; and, in addition to his live-stock, carried with him his whole property in two waggons. He advised us to make fast our

LION.

Designed by W. Daniell.

Published by Messr. Cadell & Davies, London, March 1, 1807.

oxen to the waggons, as two of his horses had been devoured on the preceding night by lions. This powerful and treacherous animal is very common in the thickets about the salt-pans; treacherous, because it seldom makes an open attack, but, like the rest of the feline genus, lies in ambush till it can conveniently spring upon its prey. Happy for the peasantry, the Hottentots, and those animals that are the objects of its destruction, were its noble and generous nature, that so oft has fired the imagination of poets, realized, and that his royal paw disdained to stain itself in the blood of any sleeping creature! The lion, in fact, is one of the most indolent of all the beasts of prey, and never gives himself the trouble of a pursuit unless hard pressed with hunger." Thus has Mr. Barrow contradicted the popular idea of this animal's generosity, and given a much more probable reason for his apparent want of fierceness.

We believe it is universally allowed, that the animal inhabitants of warm countries are larger, fiercer, and stronger, than those of cold and temperate climates. The lions of Mount Atlas, the tops of which are covered with eternal snows, have neither the strength nor ferocity of those which are produced under the burning sun of Africa. Those who have travelled through the countries where the lion is chiefly to be met with, assure us that the species is not very numerous, and that it seems to be diminishing daily. It is an observation

of Dr. Shaw, that the Romans carried fifty times as many lions from Libya, in one year, to combat in their amphitheatres, as are to be found in the whole country at this time.

The bold and majestic figure of the lion, added to his noble gait and terrible voice, are calculated to inspire the beholders with feelings not easily described. Muscular, compact, and well proportioned, the lion is a perfect model of strength joined with agility; and it is only necessary to see him in order to be convinced of his superior force. His large head, surrounded with a dreadful mane, which he can erect at pleasure, all those muscles that appear under the skin swelling with the slightest exertions; and the great breadth of his paws, with the thickness of his limbs, plainly evince that no other animal in the forest is capable of opposing him.

The great strength of the lion's neck led Aristotle to suppose that it was composed of one solid bone. On the contrary, it has as many bones as fall to the share of other quadrupeds, and the error could only originate from the amazing strength of the muscles which are connected to the bones of that part. The tongue is very rough, and beset with prickles which have the grain turned backward; the eyes are bright and fiery, and, upon the least irritation, seem to glow with peculiar lustre; nor even in death does this terrible look forsake them. The internal parts of this animal, as well as the

eyes, teeth, tongue, and paws, are so very similar to those of a cat, that the chief distinction of the anatomist arises from the size.

The length of the largest lion from the nose to the origin of the tail, according to Mr. Pennant, is above eight feet; he allows four feet for the length of the tail, which is tufted with long black hairs. The lioness, or female, is less, and wants the mane. The eyes of the lion, like those of the cat, seem fitted for seeing best in the dark; indeed, it has been frequently observed by his keepers, that a strong light greatly incommodes him. It is for this reason he rarely appears till the evening closes in, when, like the rest of the feline race, he begins to seek for prey. For this purpose he crouches on his belly, in some thicket, or among the long grass, which is found in many parts of the forest; in this retreat he continues, with patient expectation, until his prey comes within a proper distance; when he is said sometimes to spring fifteen or twenty feet, and often seizes the unhappy object at the first bound.

Although this is the general mode which the lion chooses, when in search of food, yet he will occasionally deviate from his natural manner, and pursue his prey without waiting for the darkness of the night. We are informed by Mr. Barrow, that " a Hottentot belonging to one of the farmers had endeavoured for some time, in vain, to drive his master's cattle into a pool of water enclosed between two ridges of rock; when at length he espied

a huge lion couching in the midst of the pool. Terrified at the unexpected sight of such a beast, that seemed to have its eyes fixed upon him, he instantly took to his heels, leaving the cattle to shift for themselves. In doing this he had presence of mind enough to run through the herd, concluding that, if the lion should pursue, he might take up with the first beast that presented itself. In this, however, he was mistaken: the lion broke through the herd, making directly after the Hottentot; who, on turning round, and perceiving that the monster had singled him out for a meal, breathless and half dead with terror, scrambled up one of the tree aloes, in the trunk of which had luckily been cut out a few steps, the more readily to come at some birds' nests that the branches contained. At the same moment the lion made a spring at him, but, missing his aim, fell upon the ground. In surly silence he walked round the tree, casting every now and then a dreadful look towards the poor Hottentot, who had crept behind some finches' nests * that happened to have been built in the tree.

"It was on one of these edifices that the Hottentot screened himself from the sight of the lion. Having remained silent and motionless for a length of time,

* Sometimes one of these clumps of nests will extend a space of ten feet in diameter, and contain a population of several hundred individuals. Each nest is separate from the other, although they are all under one common covering. The bird is a species of the genus *loxia*. See pl. 15.

he ventured to peep over the side of the nest, hoping that the lion had taken his departure; when, to his great terror and astonishment, his eyes met those of the animal, to use his own expression, "flashing fire at him." In short, the lion laid himself down at the foot of the tree, and stirred not from the place for four-and-twenty hours. He then returned to the spring to quench his thirst, and in the mean time the Hottentot descended the tree, and scampered to his home, which was not more than a mile distant, as fast as his feet could carry him. The perseverance of the lion was such, that it appeared afterwards he had returned to the tree, and from thence had hunted the Hottentot by the scent, within three hundred paces of the house."

However singular it may appear, it is, according to our author, a fact well established, that the lion prefers the flesh of the Hottentot to that of any other creature; and frequently singles him out from a party of Dutch, where the want of clothing and the difference of colour sufficiently distinguish the Hottentot from the European.

Nothing can be more dreadful than the roaring of the lion, which resounding through the extensive forests, in the still hour of the night, is heard at a very considerable distance. This deep and hollow roar he is said to send forth particularly before rain. It differs from his cry of anger, which is still louder, and always excited by opposition, when he lashes his sides with his tail, and his bushy mane, moving in every direction, seems to

rise and stand like bristles round his head: the skin and muscles of his face are exceedingly agitated, and his huge contracted brows half cover his glaring eye-balls. He extends his ample jaws and discovers his teeth, which seem rather formed for tearing than for chewing his food. A tongue covered with rough points, and massive claws extending three inches beyond the foot, will complete the figure of the enraged animal. When he is prepared in this manner for war, there are few beasts that will venture to engage him; and even the boldest of the human kind are daunted at his approach.

In his battles with the buffalo, although he always gains the advantage, he is said to have recourse to stratagem to effect it, being afraid to attack this formidable enemy in the open plain. He lies waiting in ambush till a favourable opportunity offers for springing upon the buffalo; when fixing his fangs in his throat, and striking his paw into the animal's face, he twists round the head and pins him to the ground by the horns, holding him in that situation till he expires from loss of blood. The lion, while young and active, is very well able to support himself by hunting down the inhabitants of the forest. During this period of health and vigour, he continues in the midst of woods, very far removed from any human habitation, and seldom quits his retreat while able to subsist by his natural industry. But when he begins to grow old, and no longer able to take those lengthened

springs, so necessary for him to secure the active inhabitants of the forest, he comes boldly down into places more frequented, where the husbandman and the shepherd have their habitation, and where the flocks and herds take shelter under their protection. Impelled by a hunger which nothing can withstand, he leaps the enclosure, and frequently satisfies his appetite at the expense of his life.

A deviation so unusual in the lion's method of taking his prey is mentioned by Mr. Sparrman, that we cannot pass it unnoticed. "A Hottentot, perceiving that he was followed by a lion, and concluding that the animal only waited the approach of night to make him his prey, began to consider of the best method of providing for his safety; which he at length effected in the following singular manner:—Observing a piece of broken ground, with a precipitate descent on one side, he sat down by the edge of it; and found, to his great joy, that the lion also made a halt, and kept at the same distance as before. As soon as it grew dark, the Hottentot, sliding gently forward, let himself down a little below the edge of the hill, and held up his cloak and hat upon a stick, making at the same time a gentle motion with it: the lion, in the mean while, came creeping softly towards him, like a cat; and, mistaking the skin cloak for the man himself, made a spring and fell headlong down the precipice."

When the lion is merely exasperated, and not impelled by hunger, he will sometimes revenge himself upon the object of his anger without de-

stroying it. When Dr. Thunberg made his second journey into Caffraria, in the year 1773, he arrived on November 4th at the celebrated Jacobus Bota's, a man who was then eighty-one years of age, and had a progeny of one hundred and ninety persons, all alive. It was not this circumstance, however, says the doctor, singular as it otherwise may be, that has given this man so much renown; but a misfortune that befel him in one of his hunting expeditions. When he was forty years of age he shot a lion in a narrow pass in a wood, who immediately fell without his observing that there were two of them together. The other lion rushed directly upon him, before he had time to load his piece, and not only wounded him with its sharp claws to such a degree that he fainted, but also gnawed his left arm and side, and lacerated him in such a dreadful manner that he lay on the ground apparently dead. The lion left him in this situation, to be carried home by his servants. His wife, who is noticed as an active woman, immediately fetched several vulnerary herbs, which she boiled in water; and, with the decoction, daily washed, fomented, and bound up his wounds, the good effects of which treatment were so evident, that he was at length restored to perfect health. His arm, however, was so much disabled that he could never afterwards handle a musket.

The lion is said to support hunger for a considerable length of time, and when he meets with food he devours as much as will serve him for two

or three days. This is not the case, however, with respect to drink: as his constitution is naturally hot, he is impatient of thirst; and in the interior parts, amidst the scorched and desolate deserts of Zaara, or Biledulgerid, where rivers and fountains are denied, he lives in a perpetual fever, which occasions a sort of madness fatal to every animal he meets with. The author of the Œconomy of Nature gives a wonderful proof of the instinct of these animals in those unwatered tracts. There the pelican makes her nest; and in order to cool her young ones, and accustom them to an element they must afterwards be conversant in, brings from afar, in her great gular pouch, sufficient water to fill the nest. The lion and other wild beasts approach and quench their thirst, yet never injure the unfledged birds, as if conscious that their destruction would immediately put a stop to their grateful supplies.

The lion produces but once a year. With respect to the time of gestation, naturalists have been divided; some asserting that the lioness goes with young six months, and others but two. The time also of their growth and their age has till lately been left in obscurity; some maintaining that in three years they arrive at their full size, while others give them a longer period to acquire their full growth. Buffon tells us that they live but twenty or twenty-two years at most: others make their lives even of shorter duration. All these doubts, however, are now reduced to certainty, since several of these animals have been bred in the

Tower; and consequently the time of their gestation, the number they bring forth, and the time they take to come to perfection, are all very well ascertained. The lioness, according to the account of her keeper, does not go more than five months with young: the young ones, which never exceed two in number, are, when brought forth, about the size of a large pug dog, harmless, pretty, and playful; they continue at the teat for twelve months, and the animal is more than five years in coming to perfection. Imprisoned within the space of a few square feet, and deprived of his natural climate, food, exercise, and every thing that can render life desirable, his existence is probably very much shortened, and no certainty whatever respecting the length of his life in a state of freedom can be derived from the captive animal. We are told that the great lion called Pompey, who died in the year 1760, was known to have been in the Tower above seventy years; and one which was brought from the river Gambia has since died there above sixty-three. If these statements may be depended upon, the lion is a very long-lived animal, and in his native forests may probably exceed the age of man himself.

It is a well known fact, that savage animals become bold in proportion as we appear to fear them, and that a firm and undaunted conduct will sometimes deter them from attacking us. In proof of this assertion, we shall relate the following story from Dr. Sparrman: "A yeoman of credibility,

whose name was Jacob Kok, of Zeckoe Rivier, told me an adventure he had, in these words:—As he was one day walking over his grounds with his gun loaded, he unexpectedly encountered a lion. Being an excellent shot, he thought himself pretty sure of killing it, and accordingly fired his gun. The charge being unluckily damp, the piece hung fire, and the ball, falling short, entered the ground close by the lion. Alarmed at this failure, he was panic-struck, and instantly betook himself to his heels; but being soon out of breath, and closely pursued by the lion, he jumped on a little heap of stones, and there made a stand, presenting the butt-end of his piece to his adversary, and determined to sell his life as dear as he could. This conduct had such an effect on the lion that it likewise made a stand, and presently after laid itself down within a few paces of the heap of stones, seemingly quite unconcerned. In this critical and alarming situation they both waited full half an hour, when the lion rose up, and at first went away very slowly step by step, as if it had a mind to steal off; but as soon as it had got to a greater distance it bounded away at a great rate." The manner in which this lion retired is perfectly consistent with its feline character, and may be daily witnessed in our domestic cat, who, if he thinks his antagonist too much for him, will slowly steal away till he gets to a considerable distance.

In Africa they hunt the lion on horseback, but never venture to pursue him except on the open

plains. If he keeps either in a coppice or wood on a rising ground, they tease him with dogs till he is provoked to come out; they generally go two or more in company, that one may assist and rescue the other, if the first shot should chance to miss. If the lion sees the hunters at a considerable distance, he endeavours to get out of sight as fast as he can; but if he is near when they discover him, he walks off in a surly manner, without hurrying himself in the least, as if, says Church, he scorned to show any fear. When he finds himself vigorously pursued, he is soon provoked to resist, or at least he disdains to fly any longer. He now slackens his pace, and at length only slides away slowly, step by step, eyeing his pursuers askance as he retreats: at length he makes a stand, turns round to face them, and giving himself a shake, he roars with a short and sharp tone, being then in fact ready to spring on them and tear them in pieces. This is the precise time for the hunters to approach the lion, keeping at a proper distance from each other; and he that is nearest, and has the best mark presented him of that part of the lion's body which contains his heart and lungs, should be the first to jump from his horse, and, securing his bridle, by putting it round his arm, discharge his gun; then instantly recovering his seat, he must ride obliquely across his companions, and, giving the reins to his horse, must trust entirely to his speed and fear, to convey him from the reach and fury of the enraged beast, if he has only wounded, or totally missed

him. In either case a fair opportunity offers for some of the other hunters to fire in their turn, in the same manner, and divert the attention of the lion from their companion. In this manner, Church informs us, they mutually relieve each other, till the destruction of the beast closes the scene.

There has never been an instance known of any accident happening to those who hunt the lion on horseback, provided they are accustomed to the sport, and conduct themselves with prudence. The lion is easily killed with a bullet: if it enters his heart or lungs, his death is immediate; but should it wound the intestines, or lodge in the cavity of the abdomen, he is presently thrown into vomitings, which disable him from running.

We are told that twelve or fifteen common farm-house dogs will readily overcome the largest lion, provided they attack him in the day-time, and on an open plain. As soon as the dogs approach the lion, he disdains to fly any further, but sits himself down. The hounds then get round him, and, rushing on him all at once, are thus enabled to tear him in pieces, before he has time to give more than two or three slight strokes with his paws; each of which, however, is instant death to the dog which is unfortunate enough to receive it.

The roaring of the lion serves as a warning for other animals to betake themselves to flight; but, as it is reported he always puts his mouth to the ground when he roars, the sound is equally diffused

in all directions, so that it is impossible to ascertain from what quarter it proceeds, and the affrighted animals, flying about in every direction, frequently run to the very spot they ought to shun, and become the easy prey of the animal they are so anxious to avoid. The slow and prolonged note, accompanied by the nocturnal darkness, and the terrible idea one is ready to form of this tremendous animal, never fails to make the most alarming impression on the hearer; and such is the power of instinct, that dogs and cattle are said to betray a consciousness of the vicinity of a lion, whether he roars or not. Dr. Sparrman, upon whose authority this assertion must rest, assures us, that in this situation his hounds did not venture to bark, but kept quite close to the Hottentots; his oxen and horses sighed deeply, lay down on the ground and stood up alternately, as if they did not know what to do with themselves; frequently hanging back, and pulling slowly with all their might at the strong straps with which they were tied up to the waggon: and this, as he observes, from pure instinct, having never seen a lion in their lives.

TYGER.

Designed by W. Daniell.

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TIGER.

SPECIFIC CHARACTER.

FELIS TIGRIS. F. cauda elongata, corpore maculis omnibus virgatis. *Linn. Syst. Nat. Gmel.* 1. p. 76.
Tail long, body marked with dark-coloured streaks.
Felis flava, maculis longis nigris variegata. *Briss. Quadr.* p. 195.

TIGER. . . . *Sm. Buff.* v. 5. p. 153. pl. 112. *Penn. Hist. Quadr. ed.* 3. v. 1. p. 277. *Bew. Quadr.* p. 186. *Shaw Gen. Zool.* pl. 83.

SOME animals are formed to live with man, to be serviceable to him, and to depend upon him for their support; while others are created to range in woods and deserts, to live by rapine, and to be the terror of all who approach them. The care of Providence does not appear less admirable in the mildness it infuses into animals who live for the benefit and support of mankind, than in the preservation of all those savage beasts it nourishes in rocks and solitudes, without folds or pasture, without magazines, or any assistance from man, but rather in opposition of all his endeavours to destroy them: and yet, with all these disadvantages, they are better accommodated with every necessary, have more

activity for the chase, are stronger, better nourished, and endued with more vivacity; are clothed with a finer skin, and have a more perfect turn of shape, than the generality of those who have man for their purveyor.

We select the tiger from the rest of the creation, as the strongest instance of the above assertion we can possibly produce. Born with a disposition as mischievous as his form is beautiful, he seems at once to be the terror and the admiration of mankind. The glossy smoothness of his hair, which shines with greater brightness than even that of the leopard; the extreme blackness of the streaks with which he is marked, and the bright yellow ground which they diversify, cannot fail to attract the attention of the beholder. So much, indeed, is the skin of the tiger esteemed all over the East, particularly in China, that the Mandarins cover their seats of justice with it, and convert it into coverings for cushions in winter. The length of a full grown tiger is between eight and nine feet, when measured from the muzzle to the origin of the tail; the height about four feet two or three inches, though some tigers have been known to exceed this measurement. The belly, inside of the legs, and part of the throat, are white; the back and sides are yellow, becoming gradually lighter towards the belly. The toes, which are five before and four behind, are armed with sharp, hooked claws, lodged in a sheath, which may be exerted or drawn in at pleasure.

The true species of tiger, fortunately for the rest of the creation, is far from numerous, and, indeed, may be considered as a rare animal even in those parts of the East Indies which are most congenial to its nature. Crouching and concealed in the wood which borders some river or lake, he waits the approach of those animals which the heat of the climate so often obliges to satisfy their thirst. Here he takes the fatal spring, which scarcely allows the unfortunate animal time to utter the cry of despair before he is torn in pieces; a bull is presently overthrown and dragged away with ease: the wild male buffalo, indeed, will dart at his enemy; but if he is alone, we are assured, he soon falls a victim to his cruel antagonist.

The amazing strength of the tiger would appear incredible, if it were not founded on the authority of so many respectable travellers. Captain Hamilton informs us, that a " peasant in the Sundah Rajah's dominions had a buffalo fallen into a quagmire; and while he went for assistance, a large tiger, with its single strength, drew forth the animal, though the united force of many men was insufficient for the purpose. The first object which presented itself to the people on their return to the place was the tiger, who had thrown the buffalo over his shoulders, and was carrying it away, with the feet upwards, towards its den. As soon as it saw the men, it let fall its prey, and instantly fled to the woods; but it had previously killed the buffalo and sucked its blood. The Indian buffalo

usually weighs a thousand pounds, which is twice the weight of our black cattle; from whence some idea may be formed of the enormous strength of this cruel and rapacious animal, which could run off with a creature twice its own weight with such apparent ease."

Tiger-hunting is followed in the East, among other amusements, and is not attended with so much danger as we should imagine from the attack of so fierce an enemy. The hunters are mounted upon elephants, and well provided with fire-arms. In the Asiatic Annual Register for the year 1804, is a letter from a gentleman to his friend, giving an account of a hunting party of the late Nawab, Asuf-ud-Dowlah, where the writer, after having enumerated the immense cavalcade of his excellency, describes the attack of a tiger in the following words:—"The first tiger we saw and killed was in the mountains; we went to attack him about noon; he was in a narrow valley, which the Nawab surrounded with above two hundred elephants; we heard him growl horribly in a thick bush in the middle of the valley. Being accustomed to the sport, and very eager, I pushed in my elephant; the fierce beast charged me immediately: the elephant, a timid animal, turned tail, and deprived me of the opportunity to fire. I ventured again, attended by two or three other elephants: the tiger made a spring, and nearly reached the back of one of the elephants, on which were three or four men: the elephant shook himself so forcibly, as to throw

these men off his back; they tumbled into the bush. I gave them up for lost, but was agreeably surprised to see them creep out unhurt. His excellency was all this time on a rising ground near the thicket, looking on calmly, and beckoning to me to drive the tiger towards him. I made another attempt, and with more success; he darted out towards me on my approach, roaring furiously and lashing his sides with his tail. I luckily got a shot and hit him: he retreated into the bush, and ten or twelve elephants just then pushed into the thicket, alarmed the tiger, and obliged him to run towards the Nawab, who instantly gave him a warm reception, and with the assistance of some of his omras, or lords, laid the tiger sprawling on his side. A loud shout of *wha! wha!* proclaimed the victory."

This gentleman assures us that these savage beasts may be hunted upon elephants with perfect safety: he had been at the killing of above thirty tigers, and seldom saw any person hurt.

Nothing can give us a stronger proof of the great strength and courage of the tiger, than the famous combat between that animal and two elephants, as related by Father Tachard. A lofty palisade of bamboo cane was built at Siam; it occupied an area of about one hundred feet square, and into this inclosure the two elephants appointed for the combat were introduced. It appears from the account, that the head and part of the trunk of each elephant was covered with a mask to defend him from the claws of the tiger; this gave them a decided and seem-

ingly unfair advantage over their enemy. As soon as Father Tachard arrived at the place, a tiger was brought from its den, of a much larger size than he had ever seen before. He was not at first let loose, but held with cords till one of the elephants approached and gave him two or three such heavy blows on the back with his trunk, that the tiger fell to the ground, stunned, and apparently dead. In this situation he was unloosed; and although the first blows had greatly abated his fury, he had no sooner sufficiently recovered himself, than with a dreadful roar he made a spring at the elephant's trunk, which was stretched out to strike him: but the elephant, with his usual dexterity, drew up his trunk, and, receiving the tiger on his tusks, threw him into the air. This so daunted the fury of the animal, that he gave up the contest with the elephant, and ran several times round the palisade, frequently springing at the spectators. Three elephants were afterwards sent against him, who in their turns gave the tiger such heavy blows, that the wretched animal was again deprived of his senses, and would certainly have been killed, if an end had not been put to the combat.

M. d'Obsonville, Mr. de Maisonpré, and six sepoys were traversing one of the defiles of High Canara, between Boncombondi and Bassavapatnam, when they were informed that a royal tiger had for some time past committed the most dreadful ravages in the place they were then approaching.

"When we came to the place, we saw him lying

in the sun; and, as we approached at the distance of about twenty paces, he instantly arose: but seeing many of us well armed, he climbed with agility up the other part of the mountain, disturbed, but not afraid. He appeared to us nearly as high as a middle-sized pony. As we were accompanied by six chosen sepoys, it is more than probable we might have killed him; but we were incumbered with horses, and on a stony road, not above eight or ten feet wide, at the edge of which was a precipice: it would, therefore, have been very imprudent to have attacked an animal, which, though wounded, would not have fallen unrevenged.

"We had not gone above ten paces from the place where the tiger had lain, before we saw a tolerably large dog, with long hair, come from behind a rock, the master of which had perhaps been devoured: the poor animal jumped upon us, caressed us exceedingly, and would not leave us."

The following narrative by Mr. Pennant will serve to show that the tiger may be deterred from his purpose at the moment he is about to seize his prey. I was informed, says this gentleman, by very good authority, that in the beginning of this century, some gentlemen and ladies, being on a party of pleasure under a shade of trees on the banks of a river in Bengal, observed a tiger preparing for its fatal spring: one of the ladies, with amazing presence of mind, laid hold of an umbrella, and furled it full in the animal's face; which

instantly retired, and gave the company opportunity of removing from so terrible a neighbour.

The lamentable fate of the only son of Sir Hector Monro, who was carried off by a tiger from the midst of his companions, will make a lasting impression on the memory of all who are acquainted with the transaction.

This unfortunate gentleman, accompanied by three of his friends, went on shore, December 22, 1792, on Sawgar Island, to shoot deer. They continued their sport till the afternoon, when they retired to the edge of a jungle to refresh themselves; where they had not remained long, before one of the party, who was leaving the rest to shoot a deer, heard a dreadful roar, and saw a large tiger spring on poor Monro, and rush with him into the jungle, with the greatest ease, dragging him through every thing that obstructed his course, as if all were made to yield to his amazing strength. All that his companions could do to rescue their friend from this shocking situation, was to fire at the tiger; and it is evident that their shots took place, since in a few minutes after Mr. Monro staggered up to them covered with blood, and fell. Every medical assistance that the ship afforded was procured for him immediately, but in vain; he expired in the course of twenty-four hours in the greatest agonies. His head was torn, his skull fractured, and his neck and shoulders covered with wounds made by the claws of the savage beast.

It is worthy of observation, that neither the large fire that was blazing close to them, nor the noise and laughter which it seems they were making at the time, could divert this determined animal from his purpose.

John Mason, the present keeper of the beasts in Exeter Change, who was formerly of the Tower, very narrowly escaped the fate of the unhappy Monro.

About five years ago, a tiger was purchased by Mr. Alpey to send to the Emperor of Germany, and placed in the Tower, to remain there for a few days, till the ship destined to convey him abroad was ready. The animal was confined in a large wooden case, sufficiently ventilated, and lined with iron hoops, some of which he ripped off during the first night, and gnawed partly through the case; which being perceived the next day, the place was merely repaired by the addition of a strong piece of wood nailed on the outside. The consequence might well be expected. The tiger renewed his efforts, and in the course of the following night made his escape, and sprung up a wall ten feet and a half high, where he remained till Mason came in the morning. The fear of losing such a valuable animal induced this poor fellow, for a reward of ten guineas, to hazard his life in an attempt to secure the tiger. For this purpose he engaged a sergeant and some other persons to assist him, whom he placed in a room, the door of which opened upon the leads, from whence he could

reach the animal. He then provided himself with a strong rope, one end of which he gave through the window to his companions, and with the other, having a running noose upon it, he slowly approached the tiger, and threw it over its neck. This was the critical moment; the people within were directed to pull the rope and secure the beast: unfortunately, the noose slipped off, and the enraged animal immediately sprung upon the keeper, fixing his teeth into the fleshy part of his arm, and tearing his breast and hand in a dreadful manner with his claws. In this shocking situation the poor man lay under the tiger, while the sergeant cut a bullet into four parts; and having loaded his musket, he fired through the window at the animal; who, the moment he received the shot, quitted his hold, and after staggering for a few minutes expired. The bullet, however, which destroyed the tiger, had nearly been equally fatal to the man, one of the quarters having glanced against his temple, and deprived him of all sense and motion for a considerable time. Nevertheless, after keeping his bed a fortnight he gradually recovered, and is now perfectly well, though he will carry the marks of his enemy about with him as long as he lives.

We had this account from the keeper during one of our visits to Exeter Change in November 1805; and that we might not doubt the truth of what he asserted, he offered to send for the sergeant who had preserved his life, and who was then living in the neighbourhood.

When a tiger kills a large animal, he does not devour it upon the spot, but drags the prey with incredible swiftness to a gloomy part of the nearest wood, where he can glut himself at leisure, and indulge his insatiate thirst for blood without interruption.

The ferocity of the tiger can never be totally subdued, unless, indeed, we quote the account of that which was brought home in the Pitt Indiaman from Bengal, and which before he was a twelvemonth old was so far domesticated as to admit of every kind of familiarity from the people on board. But it must be remembered that when this was taken to the ship its age did not exceed six weeks, and, when arrived in this country, had not completed a year: therefore it is impossible to say how much longer his good-humour would have continued.

The female tiger produces four or five cubs at a litter, and when robbed of her young becomes desperate to the last degree. She braves every danger, and commits the most dreadful devastation wherever she goes; she will then attack every animal that comes in her way, not excepting even the king of the forest; and so great is her fury upon such occasions, that both have been known to perish in the combat.

CAT.

SPECIFIC CHARACTER.

Felis Catus.	F. cauda elongata annulata. *Linn. Syst. Nat. Gmel.* 1. p. 80. Tail long and annulated. Felis cauda elongata, auribus equalibus. *Faun. Suec.* 3.
Common Cat.	*Sm. Buff.* v. 4. p. 49. pl. 48 & 49. *Penn. Hist. Quadr.* v. 1. p. 295. *Penn. Brit. Zool.* v. 1. p. 82. *Bew. Quadr.* p. 208.

Howel dda, or Howel the Good, died in the year 948, after a reign of thirty-three years over South Wales, and eight years over all Wales. "That excellent prince," says Mr. Pennant, "did not think it beneath him (among his laws relating to the prices, &c. of animals) to include that of the cat; and to describe the qualities it ought to have. The price of a kitling before it could see was to be a penny; till it caught a mouse, two-pence; when it commenced mouser, four-pence. It was required besides, that it should be perfect in its senses of hearing and seeing, be a good mouser, have the claws whole, and be a good nurse; but if it failed in any of these qualities, the seller was to forfeit to the buyer the third part of its value.

If any one stole or killed the cat that guarded the prince's granary, he was to forfeit a milch ewe, its fleece and lamb; or as much wheat as when poured on the cat suspended by its tail (the head touching the floor) would form a heap high enough to cover the tip of the former."

This was a notable custom in days of yore, and proper to be observed when cats were scarce: at present, however, affairs are changed, and whole litters of their blind offspring are daily devoted, without remorse, to a pail of water.

The above quotation is not only curious, as being an evidence of the simplicity of antient manners, but, as Mr. Pennant observes, it almost proves to a demonstration that cats are not aborigines of these islands, or known to the earliest inhabitants. The large prices set on them, if we consider the value of specie at that time, and the great care taken of the improvement and breed of an animal that multiplies so fast, are almost certain proofs of their being little known at that period.

When M. Baumgarten was at Damascus he saw there a kind of hospital for cats; where they were kept in a large house walled round, and it was said that the apartments were quite filled with them. He was told, when he inquired into the origin of this singular institution, that Mahomet, when he once lived there, brought with him a cat, which he kept in the sleeve of his gown, and carefully fed with his own hands. His followers in this place, therefore, ever afterwards paid a superstitious respect

to these animals; and supported them in this manner by public alms, which were very adequate to the purpose.

Cats, who prey by night, derive a particular advantage from the peculiar structure of their eyes. The pupil in man and the generality of animals has its power of contraction and dilatation confined within certain limits. It enlarges a little when the light is faint, and contracts when the light is too splendid. But this motion, though very perceptible, is nothing when compared with the pupil of cats, night-birds, and owls, whose power of altering the figure of that part of the eye is so great, that the pupil will vary, according to the degree of light or darkness, from a perfect circle to a narrow line. Hence these animals see better in the night than in the day, when the pupil is so perpetually contracted that they seem to have but an imperfect vision. It is in the twilight that they begin to enjoy a perfect sight; the glare of the day no longer incommodes them; the pupil reassumes its proper roundness, and the animals proceed to discover and surprise their prey. They are strongly attached to their kittens, and have even been known to suckle, with tenderness and affection, the young of other animals. Mr. White in his Natural History of Selborne has related the following instance:

"My friend had a little helpless *leveret* brought to him, which the servants had fed with milk from a spoon; and about the same time his cat kittened, and the young were dispatched and buried. The

hare was soon lost, and was supposed to have been killed by some dog or cat. However, in about a fortnight, as the master was sitting in his garden, in the dusk of the evening, he observed his cat, with tail erect, trotting towards him, and calling with little short inward notes of complacency, such as these animals use towards their kittens; and something gamboling after her, which proved to be the leveret, that the cat had nourished with her milk, and continued to support with great affection. Thus was a granivorous animal nurtured by a carnivorous and predacious one! This strange affection was probably occasioned by those tender maternal feelings which the loss of her kittens had awakened; and by the complacency and ease she derived from the procuring of her teats to be drawn, which were too much distended with milk. From habit she became as much delighted with this foundling as if it had been her real offspring."

Another example of a similar nature is recorded by the same gentleman in his Naturalist's Calendar.

"A boy had taken three young squirrels in their nest. These small creatures he put under a cat who had lately lost her kittens; and found that she nursed and suckled them with the same assiduity and affection as if they had been her own progeny. So many persons went to see the little squirrels suckled by a cat, that the foster-mother became jealous of her charge, and in pain for her safety; and therefore hid them over the ceiling, where one died. This circumstance showed her affection for

these foundlings, and that she supposed the squirrels to be her own young."

We have introduced the following account of a cat who was the means of detecting a murder, from the Monthly Magazine for January 1801.

A physician at Lyons, in July 1800, was requested to inquire into a murder that had been committed on the body of a woman of that city. In consequence of this solicitation, he went to the residence of the deceased, where he found her extended lifeless on the floor and weltering in her blood. A large white cat was mounted on the cornice of a cupboard, at the further end of the apartment, where he seemed to have taken refuge. He sat motionless, with his eyes fixed on the corpse, and his attitude and looks expressing horror and affright. The following morning he was found in the same station and attitude; and when the room was filled with officers of justice, neither the clattering of the soldiers' arms, nor the loud conversation of the company, could in the least divert his attention. As soon, however, as the suspected persons were brought in, his eyes glared with increased fury; his hair bristled; he darted into the middle of the apartment, where he stopped for a moment to gaze at them; and then precipitately retreated under the bed. The countenances of the assassins were disconcerted; and they now, for the first time during the whole course of the horrid business, felt their atrocious audacity forsake them.

Cats are to be found in a wild state in almost

every climate. They do not differ specifically from our domestic kind; but they are very fierce and destructive, making great havock among poultry, rabbits, hares, &c. They are much larger than the house cat, and are very strongly made, with tremendous claws and teeth. Mr. Bewick says he recollects one having been killed in the county of Cumberland, which measured from its nose to the tip of the tail upwards of five feet." They are taken either in traps, or by shooting, but the latter is a dangerous mode; for, if they are only slightly wounded, they will attack the hunter with a fury which he may have cause to repent.

BEAR.

GENERIC CHARACTER.

Six cutting teeth, and two canine, in each jaw.
Eyes provided with a nictitating membrane.
Snout lengthened.
Five toes both before and behind.

SPECIFIC CHARACTER.

URSUS ARCTOS. U. fusco nigricans, cauda abrupta. *Linn. Syst. Nat. Gmel.* 1. p. 100.
Of a blackish brown colour, with a very short tail.
Ursus niger, cauda unicolore. *Briss. Quadr.* 184.

COMMON BEAR. *Sm. Buff.* v. 5. p. 1. pl. 103. *Penn. Hist. Quadr. ed.* 3. v. 2. p. 1. *Bew. Quadr.* p. 261. *Shaw Gen. Zool.* pl. 102.

THE black bear, the brown bear, the gray bear, and the white land bear, are all varieties of each other, though all naturalists agree that the white polar or sea bear is a distinct species. Of the several varieties above mentioned the brown bear is by far the most common, and is a savage and solitary animal, residing in the most unfrequented places,

BEAR.

Designed by W. Daniell.

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and sometimes among the most dangerous precipices of uninhabited mountains.

The length of a full grown brown bear is about six feet. He is covered with a hard and thick skin, and clothed with long coarse hair; he has short ears, little eyes, strong and clumsy limbs, large feet, and a tail which is hardly visible. He is said to destroy cattle, and feed even on carrion; nevertheless, he seems intended by Nature to live upon vegetables, since he will eat potatoes, corn, different sorts of fruits and roots, and is known to be fond of peas; of which, says Mr. Pennant, " he will tear up great quantities, and, beating them out of their shells on some stone or hard spot of ground, eats the grain, and carries off the straw." The senses of seeing, hearing, and feeling, he possesses in high perfection, and is even capable of some degree of instruction, so much indeed, as to move in awkward measures upon his hind feet to the voice or instrument of his leader; and it must be confessed, says Goldsmith, " that the dancer is often found to be the best performer of the two." He is a most capricious creature, and never, safely, to be trusted, however mild and gentle his appearance may be towards his master. In his attacks, instead of using his teeth he strikes his adversary with his paws; and not contented with the usual mode of warfare, he hugs his enemy with all his might, who seldom quits his embraces till he is squeezed to death.

On the approach of the winter months the bear,

who is at that time excessively fat, retires to the most gloomy part of the forest, where in some cavern that has been hollowed out by time, or in the decayed body of some large tree, he passes several weeks alone, without provisions, and to appearance almost without life. However, he is not entirely deprived of sensation, like those animals who spend a part of the year in a truly dormant state, but seems rather a voluntary prisoner, being provided by Nature with a sufficient quantity of fat for his subsistence during the time; and he only begins to feel inclined to seek his food when the fat he had acquired in the summer is almost wasted away. It is then that he comes from his hiding-place, in search of fresh nourishment, wasted, lean, and weak. The common report that the bear lives during his confinement by sucking his paws, is without the smallest foundation, and may be classed among the many vulgar errors which custom has fixed a value upon.

The female bear brings forth in the winter, and is very careful in providing a proper retreat for her young: she prepares for them a soft bed of moss and herbs, in the bottom of her cavern, and suckles them till they are able to go abroad with her. She likewise often conceals them in the most secret and gloomy places, to secure them from the savage disposition of the male, who never fails to devour them whenever he can get an opportunity. One, two, or three young ones are generally produced at a litter; and an ingenious writer informs us, that

when the young are first whelped they are yellow, with a white mark round the neck, and do not look much like bears: their eyes are closed during four weeks; they are about eight inches long when first born, but increase to fourteen or fifteen at the end of three months; at that age they appear almost round, and their snout is very sharp and pointed. They do not acquire much strength till they are full grown, before which time they have lost their white hair, which gradually decreases, and the yellow is changed into brown.

The affection of the female for her young is so great that she will expose herself to every danger to preserve them, and is then more to be dreaded than the male. When the spring is sufficiently advanced for the old bear to leave her retreat, she comes forth attended by her cubs, and strictly examines every spot in search of food. Notwithstanding her shapeless form she will ascend a tree with surprising agility, and devour the fruit in great quantities, gathering it with one paw, while she keeps herself firm on the branches with the other.

These animals are so fond of honey that they will climb hollow decayed trees in search of it, and where a hive is to be found they never fail to enjoy its contents.

A singular custom prevails among the savage Americans respecting the bear, who is held by them in great veneration. When one is killed, they paint his head with different colours, and place it on an elevated situation, where it receives the re-

spects of all the guests; who, after singing songs to celebrate his praise, conclude the ceremony by feasting on his body.

In passing through Lithuania Mr. Coxe observed, in various parts of a forest, circular ranges of boards fixed to several trees twelve feet from the ground, and projecting three from the trunk. On great hunting parties ladders are placed against these scaffoldings; and the hunters, if closely pressed by a bear, ascend the ladder and draw it up after them: the bear, although an excellent climber, is stopped in his ascent by the projection of the boards.

Hunting the bear is not attended with much danger when properly conducted; and as the employment is very profitable, it is much practised. In Canada and Louisiana, where the black bears generally reside in the decayed parts of old trees, which are sometimes thirty or forty feet high, the hunters disturb them by lighting a fire at the bottom, and the smoke presently becomes so intolerable that the black family are obliged to retreat. If there is a female and her cubs, the mother descends first, and is killed before she reaches the ground: the young ones, who soon follow, are easily secured, and are generally killed for the sake of their skin and delicate flesh.

The manner in which these animals are chased by the Americans, and the superstitious ceremonies of the hunters, have afforded a curious subject for the very intelligent Mr. Pennant, who in his Arctic

Zoology has favoured us with the following account:

"The chase of these animals is a matter of the first importance, and never undertaken without abundance of ceremony. A principal warrior first gives a general invitation to all the hunters. This is followed by a most serious fast of eight days, a total abstinence from all kinds of food; notwithstanding which, they pass the day in continual song. This they do to invoke the spirits of the woods to direct them to the place where there are abundance of bears. They even cut their flesh in divers parts of their bodies, to render the spirits more propitious. They also address themselves to the *manes* of the beasts slain in preceding chases, as if it were to direct them in their dreams to plenty of game. One dreamer alone cannot determine the place of chase, numbers must concur; but as they tell each other their dreams, they never fail to agree: whether that arises from complaisance, or by a real agreement in the dreams from their thoughts being perpetually turned on the same thing.

"The chief of the hunt now gives a great feast, at which no one dares to appear without first bathing. At this entertainment they eat with great moderation, contrary to their usual custom. The master of the feast alone touches nothing; but is employed in relating to the guests antient tales of the wonderful feats in former chases: and fresh invocations to the manes of the deceased bears con-

clude the whole. They then sally forth, amidst the acclamations of the village, equipped as if for war, and painted black. Every able hunter is on a level with a great warrior; but he must have killed his dozen great beasts before his character is established; after which his alliance is as much courted as that of the most valiant captain.

" They now proceed on their way in a direct line; neither rivers, marshes, nor any other impediments, stop their course; driving before them all the beasts which they find in their way. When they arrive in the hunting-ground, they surround as large a space as their company will admit, and then contract their circle; searching, as they contract, every hollow tree, and every place fit for the retreat of the bear, and continue the same practice till the time of the chase is expired.

" As soon as a bear is killed, a hunter puts into his mouth a lighted pipe of tobacco, and, blowing into it, fills the throat with the smoke, conjuring the spirit of the animal not to resent what they are going to do to his body; nor to render their future chases unsuccessful. As the beast makes no reply, they cut out the string of the tongue, and throw it into the fire; if it crackles and runs in (which it is almost sure to do) they accept it as a good omen; if not, they consider that the spirit of the beast is not appeased, and that the chase of the next year will be unfortunate.

" The hunters live well during the chase, on provisions which they bring with them. They re-

turn home with great pride and self-sufficiency; for to kill a bear forms the character of a complete man. They again give a great entertainment, and now make a point to leave nothing. The feast is dedicated to a certain genius, perhaps that of gluttony, whose resentment they dread if they do not eat every morsel, and even sup up the very melted grease in which the meat was dressed. They sometimes eat till they burst, or bring on themselves some violent disorders. The first course is the greatest bear they have killed, without even taking out the entrails, or taking off the skin, contenting themselves with singeing the skin, as is practised with hogs."

Of the many singular customs that have prevailed in different countries, that which is recorded of the Laplanders is not among the least. The hunter who had killed a bear was reckoned a great man, and was held in the highest esteem by both sexes; he was caressed, he was feasted; but he was denied access to his wife for three days. The bear was brought home in triumph, and a new tent was erected for the hero, which, however, he never entered till he had changed his hunting dress: here he was to remain three days, the women confining themselves at home during the time. The flesh of the bear was dressed in the tent of the hero; the feast was prepared; and part of it sent to the females: but here comes another singularity, the ladies were never allowed a bit of the rump; neither were they to receive the meat at the common en-

trance of the hut, but through a hole in another part. The feast being finished, the bones are buried with great solemnity, every bone being placed in its proper situation, from a firm persuasion that the bear will be restored, and reanimate a new body.

The flesh of a young bear, fattened with the autumnal fruits, is allowed by all who have tasted it to be very delicious food. It is both wholesome and nourishing, and resembles pork more than any other meat. Mr. Pennant says, the tongue and the paws are esteemed the most exquisite morsels; the hams are also excellent, but apt to rust if not well preserved.

The bear is a valuable creature to the inhabitants of high latitudes; they not only feed upon his flesh, and sell his fat, but use his skin for beds and for coverlets, for bonnets, for gloves, for collars for their dogs, and soles for their shoes. The shoulder blades are formed into instruments to cut the grass, and they cover their faces with the intestines to protect them from the sun.

THE POLAR BEAR.

The white or polar bear is found within the whole polar circle of Europe and Asia, and in America as low as Hudson's Bay and Labrador. He

braves the utmost severity of the arctic zone, and is so little calculated to live in a temperate climate, that the one which was brought to England some years ago was restless, very furious, and always in motion. To keep him tolerably comfortable, the keeper was frequently obliged to throw over him pailfuls of cold water. From the coast of Greenland the white bear is frequently carried out to sea on pieces of ice, which are detached by winds or currents from the main body. On one of these frozen islands, he is often floated to the shore of Iceland; where a general alarm is spread upon his appearance, and the inhabitants join in the pursuit till the animal is destroyed. A single Icelander, with no other weapon than a spear, will engage this formidable creature; and although the combat is sometimes obstinate, he never fails to come off victorious. Mr. Pennant mentions a person who lived near Langeness, the extreme northern point of Iceland, as still celebrated for having slain not fewer than twenty in single combat. To encourage the destruction of these animals, a reward is offered for every skin, which must be delivered to the next magistrate. They were formerly sent by the hunters to the different cathedrals and churches, for the use of the priests, who, in the depth of winter, used to stand upon them to defend their feet from the cold stones while they celebrated high mass.

This species of bear is so bold and ferocious that it has been known to attack an armed vessel at a

distance from the shore, and has been with difficulty prevented from coming on board. In one instance, related by Bewick, it succeeded in its attempt. The animal was wounded by the crew of a boat belonging to a ship in the whale-fishery, and with that steady determination to be revenged, which is the characteristic of the bear, it immediately ran along the ice towards the boat; and on its way received a second shot, which made it still more furious. It presently swam to the boat, and in attempting to get on board received a blow with a hatchet by one of the crew, which cut off its fore foot while resting on the gunwale. Notwithstanding the loss of a foot, and the two other wounds, the animal continued to swim after them till they arrived at the ship; when the bear immediately ascended the deck; and the crew, having fled into the shrouds, would have been pursued by the animal, if a lucky shot from one of them had not laid it dead upon the deck. Berentz had reason to remember the dreadful vengeance of these creatures, who frequently attacked and killed his seamen when they went on shore on the island of Nova Zembla. Those who were unfortunate enough to be seized by them were carried away in their mouths, torn to pieces, and devoured even in sight of their companions. Nothing less than a mortal wound will make them desist from their purpose; and one which was shot while preying on a man, staggered away with the mangled corpse in its mouth without quitting its hold till it was killed.

But it must be confessed that we are too frequently the aggressors, and that the animal in general may be rather said to take a just revenge, than exercise a wanton cruelty. It sometimes happens that a Greenlander in his canoe, passing near an ice float, is surprised by a visit from a white bear, who, if he does not overset the boat, will seat himself very quietly as a passenger, and suffer the Greenlander to row him ashore. It is said that on such occasions the bear seldom offers any violence to his waterman.

They generally spend the summer months on islands of ice, passing frequently from one to the other; and they have been seen on these islands at the distance of eighty miles from any land. They are excellent swimmers, and sometimes dive, though they cannot stay long under the water. Their lodgings are the natural caverns formed by stupendous masses of ice, which, being piled one over another, leave large cavities beneath. The long and dismal winter nights of those inclement regions are passed by the bears in deep beds of snow, which they fashion to their purpose, and there remain in a state of torpidity, till the refreshing appearance of the vernal sun calls them forth from their retreats.

They often feed on whortleberries and crowberries, though they greatly prefer the flesh of animals; and deer, hares, birds, all sorts of fish, seals, and the carcases of whales, are alike devoured by them. Greenland abounds with them, where they

collect in great numbers, and, attracted by the smell of seals' flesh, frequently surround the habitations of the natives, and attempt to enter their huts: but the Greenlander, being aware that his company if admitted would become troublesome, drives them away by the smell of burnt feathers.

The white bear grows to a large size, and is said sometimes to measure thirteen feet in length. A smaller one measured by order of Captain Phipps was seven feet and an inch from the snout to the tail, its height at the shoulder was four feet three inches, the breadth of the fore paw seven inches, and the weight of the carcase, without the head, skin, or entrails, six hundred and ten pounds.

The tendons of this animal are split into threads, by the Greenlanders, for sewing; and of the skin they make boots, shoes, and gloves. They likewise feed on the flesh and fat; which last is frequently so excessive, that a hundred pounds has been taken out of a single beast. The only unwholesome part about the animal is the liver; which is so pernicious, that three of Hemskirk's sailors became dangerously ill on eating some of it boiled.

Pennant informs us, that the polar bear became part of the royal menagerie as early as the reign of Henry III. Mr. Walpole has proved how great a patron that despised prince was of the arts. It is not less evident that he extended his protection to natural history. We find he had procured a white bear from Norway, which the Norwegians had probably imported from Greenland, they having pos-

sessed that country for some centuries before that period. In Madox's Antiquities of the Exchequer, there are two writs extant from that monarch, directing the sheriffs of London to furnish sixpence a day to support *our* white bear in our Tower of London; and to provide a muzzle and iron chain to hold him when out of the water; and a long and strong rope to hold him when he is fishing in the Thames.

OPOSSUM.

GENERIC CHARACTER.

Two canine teeth in each jaw.
Cutting teeth vary in number.
Five toes on each foot.
Tail very long, slender, and usually naked.

SPECIFIC CHARACTER.

Didelphis marsupialis.	D. mammis octo intra abdomen. *Linn. Syst. Nat. Gmel.* 1. p. 105. Has eight teats within the pouch. Philander maximus orientalis. *Seb. Mus.* 1. p. 64. tab. 39.
Opossum.	*Sm. Buff.* v. 5. p. 404. pl. 161, 162. *Penn. Hist. Quadr.* v. 2. p. 18. pl. 63. *Bew. Quadr.* p. 395. *Shaw Gen. Zool.* pl. 107.

Among the various ways in which Providence hath chosen to diversify the forms of different animals, there is hardly one so singular as that which is allotted the opossum for the security of its young. When the female finds herself near the time of bringing forth, she prepares a nest of coarse grass covered with long pieces of stick. Upon this nest

the young ones are born; blind, weak, and naked; and the moment they come into the world, as if they were already tired of it, they retreat into a large bag or pouch, which is situated on the lower part of the mother's belly, within which are the teats. There they adhere as if they were inanimate, till they arrive at a degree of perfection in shape, and attain sight, strength, and hair. They are then prepared to undergo what may be called a second birth; after which, they no longer attach themselves to the pouch, but merely make use of it as an asylum in time of danger. During the period of this second gestation, says Mr. Pennant, the female shows an excessive attachment to her young; she carries them about with her wherever she goes; and would rather suffer any torture, even death itself, than permit this receptacle to be opened; for she has the power of resisting every effort to unclose the pouch, by the help of some very strong muscles with which she can contract or dilate the orifice at pleasure.

When the young are suddenly surprised, and have not time to reach their asylum, they will cling to their mother's tail and escape with her. The opossum is about the size of a small cat, is very destructive to poultry, and sucks the blood without eating the flesh. It has a long tail, by which it will hang from the branches, and, by swinging its body, fling itself among the boughs of the adjacent trees. It will sometimes hang from a bough for a considerable time, and watch if any lesser ani-

mal, which it is able to overcome, passes underneath; when it immediately drops down and devours it. When the opossum finds itself on the point of being taken, it counterfeits death with such fortitude, that hardly any torture will make it move; but if the person retires, it will soon put itself in motion, and creep for shelter into some neighbouring bush. The female brings forth from four to six at a time.

WEESEL.

GENERIC CHARACTER.

Six cutting teeth, and two canine, in each jaw.
Tongue in several species beset with sharp-pointed papillæ.
Five toes both before and behind.
Claws not retractile.

SABLE.

SPECIFIC CHARACTER.

MUSTELA ZIBELLINA.	M. pedibus fissis, corpore obscure fulvo, fronte exalbida, gutture cinereo. *Linn. Syst. Nat. Gmel.* 1. p. 98.
	Feet having the toes unconnected, body tawny brown, forehead white, throat cinereous.
	Mustela obscure fulva, gutture cinereo. *Briss. Quadr.* p. 180.
SABLE.	*Sm. Buff.* v. 7. p. 309. *Penn. Hist. Quadr.* v. 2. p. 43. *Bew. Quadr.* p. 233.

THE thick and beautiful coat of the sable is at once his greatest friend and his chief enemy. It serves, indeed, completely to defend the owner from the cold; but at the same time it exposes him to the

avarice of mankind, who employ every means to destroy the animal, that they may enrich themselves by adding another luxury to the many already enjoyed by the opulent.

In size and figure the sable resembles the martin. The skin of one which was sent Mr. Pennant, from Canada, measured twenty inches from the nose to the tail; the tail itself measured eight inches from the base to the end of the hairs. These little animals are found in the Asiatic part of Russia, in Kamtschatka, and Japan: but they are by no means so plentiful as formerly; and the high price set upon their skins makes the hunters so eager to obtain them, that the sable will probably in time be extinct in all the accessible parts of the country. In the vast forests of fir with which the extreme parts of Siberia abound, the sables are to be found in the greatest numbers. There they either live in holes in the earth, beneath the roots of trees, or, like the martin, form nests in the hollow trunks, and skip with great agility from one tree to another. They prey during the summer on such animals as they can conquer; in winter they catch birds; and in the autumn are content with a vegetable diet, feeding chiefly on the berries of the service-tree, on hurtle-berries and cranberries. At this season of the year their skins are of least value, as they are subject to itch, and destroy the fur by rubbing themselves against the trees. About April the female brings forth from three to five little

ones, which she continues to suckle for four or five weeks.

Sables are sometimes taken by placing a piece of timber from tree to tree horizontally: towards one end of this is placed a bait: over the lower piece of wood is placed another, suspended obliquely, and resting at one end on a post very slightly; a rod extends from it to a noose, to which the bait is fastened; and the moment the sable seizes the meat, the upper timber falls, and crushes it to death.

Formerly the capture of these animals was allotted as a task to the unhappy criminals confined in Siberia; but this is no longer the case. At present the hunters of sables form themselves into companies from five to forty each; the last subdivide into lesser parties, and each chooses a leader; but the whole is under the direction of a chief. When every thing is prepared, each party embarks in a small covered boat, provided with an interpreter for the country they intend to penetrate into; with provision for the party; and with a dog and a net for every two men. Thus equipped they set out, each boat steering its appointed course till they all arrive in the hunting country; there they stop, build huts, and wait till the waters are frozen and the season commences. Before they begin the chase their leader assembles them, they unite in a prayer to the Almighty for success, and then separate. The first sable they take is called God's sable, and is dedicated to the church.

After this commendable ceremony is concluded, they penetrate into the woods, marking the trees as they advance, that they may know their way back; and in their hunting quarters form huts of trees, and bank up the snow round them. Here they begin by laying some of their traps; they afterwards advance further and lay more traps, still building new huts in every quarter, and return successively to every old one, to see what luck they have had, and to take out the game they have caught, and skin it; which none but the chief of the party must do. While they are employed in this cold and uncomfortable business, they are provided with provisions by persons who are appointed to bring it on sledges, from different places on the road, where magazines are formed for their use; as it would be impossible to convey large quantities of provisions at a time through the country the hunters are destined to penetrate, and at that inclement season of the year. The common trap used by these people is a sort of pit-fall, with a loose board placed over it, baited with fish or flesh. When sables are scarce, the hunters have recourse to nets, and follow their tracks in the new fallen snow till they discover their holes, place their nets at the entrance, and sometimes wait watching two or three days for the coming out of the animal. We are told that these poor people have sometimes been so pinched with hunger, by the failure of their provisions, that they have been reduced to take two thin boards, one of which they apply to the pit of the stomach, the other to the

back, drawing them tight together by cords placed at the ends.

When the chase is over, the company reassemble at the general rendezvous, and return home in their respective boats as soon as the rivers become navigable by the melting of the ice.

Furs were an article of luxury in Wales, even as early as the reign of Howel daa, about 994, when they sold for a high price. They soon afterwards became fashionable throughout Europe; but in the year 1337 the luxury had got to such a head, that it was enacted by Edward the Third, that every person who could not spend a hundred a year should absolutely be prohibited the use of this species of finery.

ICHNEUMON.

SPECIFIC CHARACTER.

VIVERRA ICHNEUMON. V. cauda e basi incrassata sensim attenuata apice floccoso, pollicibus remotiusculis. *Linn. Syst. Nat. Gmel.* 1. p. 84.

Tail very thick at the root, gradually tapering to the point, which is woolly; inner toes somewhat remote from the rest.

Mustela pilis ex albido et nigro variegatis vestita. *Briss. Quadr.* p. 181.

ICHNEUMON. . . . *Sm. Buff.* v. 7. p. 210. pl. 225. *Penn. Hist. Quadr.* v. 2. p. 54. *Bew. Quadr.* p. 237. *Shaw Gen. Zool.* pl. 92.

M. D'OBSONVILLE had a young ichneumon which he brought up, by feeding it at first with milk, and afterwards with baked meat mixed with rice. It was even tamer than a cat, came when called, and followed him, though at liberty, into the country.

" One day," says this gentleman, " I brought to him a small water serpent alive, being desirous to know how far his instinct would carry him against

a being with which he was hitherto totally unacquainted. His first emotion seemed to be astonishment mixed with anger, for his hair became erect; but in an instant after he slipped behind the reptile, and with a remarkable swiftness and agility leaped upon its head, seized it, and crushed it between his teeth. This essay and new aliment seemed to have awakened in him his innate and destructive voracity, which till then had given way to the gentleness he had acquired from his education. I had about my house several curious kinds of fowls, among which he had been brought up, and which, till then, he had suffered to go and come twenty times unmolested and unregarded; but a few days after, when he found himself alone, he strangled them every one, ate a little, and, as appeared, drank the blood of two."

This little animal is found in its wild state in the southern regions of Asia, from Egypt to Java; and is common, according to Kolbe, in the fields about the Cape of Good Hope. He frequents the banks of rivers, but is frequently driven from them by inundations; when he seeks the higher grounds, and even ventures to approach the habitations of men in search of prey. Serpents and birds are equally the objects of his pursuit, and he darts undauntedly upon that most venomous of all the eastern snakes, the *cobra di capello*, and seldom fails of victory: however, he is sometimes wounded in the combat, and is then said to seek immediate re-

lief from a certain herb which has the power of correcting the poison.

The description which Lucan has given of the manner in which the ichneumon seizes a serpent to avoid being injured by it, is thus translated by Rowe:

> Thus oft' th' ichneumon, on the banks of Nile,
> Invades the deadly aspic by a wile;
> While artfully his slender tail is play'd,
> The serpent darts upon the dancing shade;
> Then turning on the foe with swift surprise,
> Full on the throat the nimble seizer flies:
> The gaping snake expires beneath the wound,
> His gushing jaws with pois'nous floods abound,
> And shed the fruitless mischief on the ground.

The eyes of the ichneumon are very bright and full of fire; the nose is long and slender; the limbs are short; and the whole body is covered with hard coarse hair varying in colour. The general figure of the animal is like that of the pole-cat; but the fur is more beautiful and elegant, consisting of shades of brown, fawn-colour, and silvery gray. The Egyptians always held the ichneumon in great veneration on account of the number of noxious animals it destroyed; and particularly the crocodile, whose eggs seldom remain undiscovered by the creature, though hid beneath the sand: we have reason to admire his usefulness as well as industry in destroying them, when we are told that the crocodile lays two or three hundred eggs at a time, very few

of which escape destruction. They seem impatient of cold, and when transported to a temperate climate take every precaution that instinct can dictate to keep themselves warm; they roll themselves into a ball, and in this form continue to sleep all day long, with the head between the legs. This, however, is only when the weather is severe; as there is one in the collection at Exeter Change, which was lively enough in the month of November, and moved about the cage without showing any signs of torpidity. Seba, the celebrated naturalist, had an ichneumon sent him from the island of Ceylon, which he permitted to run for some months about the house. It was heavy and slothful by day, and often could not be awaked even with a blow; but it made up this indolence by its nocturnal activity, smelling about without being wholly tame, or wholly mischievous. It climbed up the walls and the trees with very great ease, and appeared extremely fond of spiders and worms, which it preferred probably from their resemblance to serpents, its most natural food. It was also particularly eager to scratch up holes in the ground; and this, added to its wildness and uncleanliness, obliged our naturalist to smother it in spirits, in order to preserve, and add it to the rest of his collection.

OTTER.

GENERIC CHARACTER.

Six cutting teeth, and two canine, in each jaw.
Five toes on each foot; each toe connected by a strong web.

SPECIFIC CHARACTER.

MUSTELA LUTRA. M. plantis palmatis nudis, cauda corpore dimidio breviore. *Linn. Syst. Nat. Gmel.* 1. p. 93.

Feet webbed and naked; tail half the length of the body.

Lutra digitis æqualibus. *Faun. Suec.* 1. n. 10.

Lutra castanei coloris. *Briss. Quadr.* 201.

COMMON OTTER. *Sm. Buff.* v. 4. p. 232. pl. 71. *Penn. Hist. Quadr.* v. 2. p. 77. *Bew. Quadr.* p. 451. *Shaw Gen. Zool.* pl. 100.

Would ye preserve a num'rous finny race,
Let your fierce dogs the rav'nous otter chase;
Th' amphibious monster ranges all the shores,
Darts through the waves, and ev'ry haunt explores.

GAY.

THE otter frequents the sides of lakes and rivers, and generally chooses a stony, uneven bottom, with many trunks of trees and long roots stretched be-

neath the water. The shore also is hollow, and scooped inwards by the waves. These are the places the otter chooses for its retreat; and they are generally discovered by the quantity of dead fish that are found scattered about upon the banks of the water. The late Dr. Goldsmith, who added his own information to that of Mr. Lot's of the academy of Stockholm, assures us, that it is no easy task to take the old ones alive, as they are so very strong that few dogs will dare to attack them. They bite with great fierceness, and never let go their hold when once fastened. The best way therefore is to shoot them at once, as they will never be thoroughly tamed unless they are taken young, when they may be trained to very useful purposes. The otter goes about nine weeks with young, and brings forth three, four, or five at a time: the bed for the reception of the little ones is made under the hollow banks, of rushes, flags, or such weeds as the place affords in greatest quantities. It is observed by Mr. Pennant, that this animal burrows under ground on the banks of some river or lake, and always makes the entrance of its hole under water; works upwards to the surface of the earth, and forms, before it reaches the top, several *holts*, or lodges, that, in case of high floods, it may have a retreat, for no animal affects lying drier, and there makes a minute orifice for the admission of air: it is further observed, that this animal, the more effectually to conceal its retreat, con-

trives to make even this little air-hole in the middle of some thick bush. The Doctor acknowledges that in some places this may be true, but he never observed any such contrivance: the retreat, indeed, was always at the edge of the water; but it was only sheltered by the impending bank, and the otter itself seemed to have but a small share in its formation. Be this as it may, the young ones are always found at the edge of the water; and if under the protection of the dam, she teaches them instantly to plunge, like herself, into the deep, and escape among the rushes or weeds that fringe the stream. It is there exceedingly difficult to take them; for, though very young, they swim with great rapidity, and in such a manner that no part of them is seen above water, except the tip of the nose. It is only when the dam is absent that they can be taken; and in some places there are dogs trained on purpose. When the dog discovers their retreat, he soon by his barking shows that the otter is there, which immediately plunges into the water, followed by all the young. If, however, the old one be absent, they continue terrified, and suffer themselves to be taken, rather than venture forth without their parent for a guide. At first they are carefully fed with small fish and water; but in proportion as they gather strength they have milk mixed among their food, the quantity of fish provision is retrenched, and that of vegetables is increased, till at length they are fed wholly upon

bread, which perfectly agrees with their constitution. The manner of training them up to hunt for fish requires both assiduity and patience. The usual way is first to learn them to fetch as dogs are instructed; but as they have not the same docility, it requires more art and experience to teach them. At first they are accustomed to take a bag of leather, made in the shape of a fish, and stuffed with wool, in their mouths, and to drop it when they are desired; to run after it when thrown before them, and to bring it to their master. From this they proceed to real fish, which are thrown dead into the water, and which they are taught to fetch from thence. At length, from the dead they proceed to hunt the living;—their education is completed, and they become perfect masters of the whole art of fishing. An otter thus taught is a most valuable animal, and will greatly repay the teacher for all his trouble. Goldsmith saw one of these go to a gentleman's pond at the word of command, drive up the fish into a corner, and, seizing upon the largest of the whole, bring it out of the water to its master.

When thus tamed, they seem to become attached to their owners. Bewick informs us, that William Collins, of Rimmerston, near Wooler, had a tame otter which followed him wherever he went. He frequently carried it to fish in the river; and when satiated, it never failed to return to its master. One day, in the absence of Collins, being taken

out by his son to fish, instead of returning as usual, it refused to come at the accustomed call, and was lost. The father tried every means to recover it; and after several days search, being near the place where his son had lost it, and calling it by its name, to his inexpressible joy it came creeping to his feet, and showed many genuine marks of affection and firm attachment.

The otter generally measures about two feet from the tip of the nose to the base of the tail; the length of the tail is fifteen or sixteen inches; a male weighs from eighteen to twenty-six pounds: the female from eighteen to twenty-two. The colour of the body is deep brown; the legs are short and thick, and perform the part of fins, each toe being connected to the other by a broad and strong web.

These animals are found in most of the northern parts of Europe. They inhabit America as far north as Hudson's Bay, and are likewise found in Kamtschatka, where the inhabitants usually hunt them with dogs in time of deep snow, when the otters wander too far from the banks of rivers.

There is another species called *sea-otters*, from their inhabiting that element, whose hind feet exactly resemble those of a seal. They have a very thick skin, covered with long, black, and glossy hair. They grow to a much larger size than the common otter, some of the largest weighing seventy or eighty pounds.

These creatures are very harmless, and so singularly affectionate to their young, that they never desert them, and will even pine to death for their loss. They are said to produce but one at a time, which they fondle between their fore-feet; and before the young can swim, they carry them in their paws, lying in the water on their backs, in which posture they can swim very swiftly. As they never make any resistance when attacked, they endeavour to save themselves by flight; and, after they have escaped to some distance, they will stop and look back at their enemy, holding one of their fore-feet over their eyes as a shade to defend them from the glare of light, which their weak sight cannot bear.

They are taken in several different ways, and their flesh is preferred to that of seals by the natives of Kamtschatka. The unfortunate crew commanded by Captain Bering, however, found it insipid, and so hard and tough that they were obliged to cut it into small pieces before they could eat it. They resemble seals, in being almost always in water, as well as in the form of particular parts of their bodies. They are such excellent swimmers that they have sometimes even been seen at the distance of a hundred leagues from the land.

Their skins are exceedingly valuable, and are sold in great quantities to the Chinese. Some of them will fetch from fourteen to twenty-five pounds

apiece. " What a profitable trade," says Mr. Pennant, " might not a colony carry on, was it possible to penetrate to these parts of North America, by means of the rivers and lakes! The access to Pekin would then be easy, by sailing up the gulph of Petcheli. At present these valuable furs are carried by land above three thousand miles to the frontiers of China, where they are delivered to the merchants."

HARE.

GENERIC CHARACTER.

Two cutting teeth in each jaw.
Five toes before; four behind.

SPECIFIC CHARACTER.

LEPUS TIMIDUS. L. cauda abbreviata, auriculis apice nigris, capite longioribus. *Linn. Syst. Nat. Gmel.* 1. p. 160.

Tail very short; ears longer than the head, and black at the ends.

Lepus caudatus ex cinereo rufus. *Briss. Quadr.* 94.

COMMON HARE. *Sm. Buff.* 4. p. 137. pl. 62. *Penn. Brit. Zool.* 1. p. 98. n. 20. *Shaw Gen. Zool.* pl. 162. *Bew. Quadr.* p. 337.

THIS inoffensive creature is so perfectly well known to every body, that to give a particular description of it would be trifling with the reader; indeed we should have omitted it entirely, but for the very interesting observations of the late celebrated Mr. Cowper, who amused himself for several years with the innocent playfulness of three of these animals, and afterwards

published an account of them. It was to divert his thoughts, while labouring under one of those fits of mental depression which so frequently obscured this gentleman's faculties, that he applied himself to the taming and educating of his hares; and we shall gladly avail ourselves of the particulars he has left behind him, though more than necessary for our purpose. In the year 1774 he took a leveret under his protection, which some of his neighbours' children had at first carefully cherished, but afterwards neglected. As it was soon known in the parish that Mr. Cowper was pleased with his charge, his neighbours were not backward in bringing others; so that in a short time he had as many leverets offered him as would have stocked a paddock. He undertook the care of three, whom he distinguished by different names, and immediately set about building them huts for their accommodation. They soon became perfectly tame: in the day-time they had the range of a hall, and at night retired each to his own bed, never intruding into that of another.

Mr. Cowper speaks of the engaging manners of one of his harmless companions in the following words:—"Puss grew presently familiar, would leap into my lap, raise himself upon his hinder feet, and bite the hair from my temples. He would suffer me to take him up and to carry him about in my arms, and has more than once fallen fast asleep upon my knee. He was ill three days; during which time I nursed him, kept him apart from his fellows that they might not molest him, (for, like many

other wild animals, they persecute one of their own species that is sick,) and by constant care, and trying him with a variety of herbs, restored him to perfect health. No creature could be more grateful than my patient for his recovery; a sentiment which he most significantly expressed by licking my hand, first the back of it, then the palm, then every finger separately, then between all the fingers, as if anxious to leave no part of it unsaluted; a ceremony which he never performed but once again upon a similar occasion. Finding him extremely tractable, I made it my custom to carry him always after breakfast into the garden, where he hid himself generally under the leaves of a cucumber vine, sleeping or chewing the cud till evening; in the leaves also of that vine he found a favourite repast. I had not long habituated him to this taste of liberty, before he began to be impatient for the return of the time when he might enjoy it. He would invite me to the garden by drumming upon my knee, and by a look of such expression as it was not possible to misinterpret. If this rhetoric did not immediately succeed, he would take the skirt of my coat between his teeth, and pull at it with all his force. Thus puss might be said to be perfectly tamed; the shyness of his nature was done away; and on the whole it was visible by many symptoms, which I have not room to enumerate, that he was happier in human society than when shut up with his natural companions."

The other hares were less gentle, and upon one

of them the kindest treatment had not the least effect. Mr. C. describes these animals as having each a character of his own:—"Such they were in fact; and their countenances were so expressive of that character, that when I looked only on the face of either, I immediately knew which it was. It is said that a shepherd, however numerous his flock, soon becomes so familiar with their features, that he can, by that indication only, distinguish each from all the rest; and yet, to a common observer, the difference is hardly perceptible. I doubt not that the same discrimination in the cast of countenances would be discoverable in hares, and am persuaded that among a thousand of them no two could be found exactly similar; a circumstance little suspected by those who have not had opportunity to observe it. These creatures have a singular sagacity in discovering the minutest alteration that is made in the place to which they are accustomed, and instantly apply their nose to the examination of a new object. A small hole being burnt in the carpet, it was mended with a patch, and that patch in a moment underwent the strictest scrutiny. They seem, too, to be very much directed by the smell in the choice of their favourites: to some persons, though they saw them daily, they could never be reconciled, and would even scream when they attempted to touch them: but a miller coming in, engaged their affections at once; his powdered coat had charms that were irresistible. It is no wonder that my intimate acquaintance with these specimens of

the kind has taught me to hold the sportsman's amusement in abhorrence: he little knows what amiable creatures he persecutes; of what gratitude they are capable; how cheerful they are in their spirits; what enjoyment they have of life; and that, impressed as they seem with a peculiar dread of man, it is only because man gives them peculiar cause for it.

One of Mr. Cowper's hares died young, another lived to be nine years old, and the last, which was living in May 1784, when this account was sent to the press, had just completed his tenth year:—"I cannot conclude," continues our author, "without observing, that I have lately introduced a dog to his acquaintance; a spaniel who had never seen a hare, to a hare that had never seen a spaniel. I did it with great caution, but there was no real need of it. Puss discovered no token of fear, nor Marquis the least symptom of hostility. There is therefore, it should seem, no natural antipathy between dog and hare, but the pursuit of the one occasions the flight of the other, and the dog pursues because he is trained to it: they eat bread at the same time out of the same hand, and are in all respects sociable and friendly."

It appears, from this gentleman's account, that they have no ill scent belonging to them; that they are indefatigably nice in keeping themselves clean; and that for this purpose Nature has furnished them with a brush under each foot.

Mr. Cowper has the following remarks respecting

their food, with which we shall conclude this account:—" I take it to be a general opinion that they graze, but it is an erroneous one, at least grass is not their staple; they seem rather to use it medicinally, soon quitting it for leaves of almost every kind. Sow-thistle, dent-de-lion, and lettuce, are their favourite vegetables, especially the last. I discovered, by accident, that fine white sand is in great estimation with them; I suppose, as a digestive. It happened that I was cleaning a bird-cage while the hares were with me; I placed a pot filled with such sand upon the floor, which, being at once directed by a strong instinct, they devoured voraciously: since that time I have generally taken care to see them well supplied with it. They account green corn a delicacy, both blade and stalk, but the ear they seldom eat: straw of any kind, especially wheat straw, is another of their dainties; they will feed greedily upon oats, but, if furnished with clean straw, never want them; it serves them also for a bed, and, if shaken up daily, will be kept sweet and dry for a considerable time. They do not, indeed, require aromatic herbs, but will eat a small quantity of them with great relish, and are particularly fond of the plant called musk; they seem to resemble sheep in this, that if their pasture be too succulent they are subject to the rot; to prevent which, I always made bread their principal nourishment, and, filling a pan with it cut into small squares, placed it every evening in their chambers, for they feed only at evening and in the night. During the

winter, when vegetables were not to be got, I mingled this mess of bread with shreds of carrot, adding to it the rind of apples cut extremely thin; for, though they are fond of the paring, the apple itself disgusts them. These, however, not being a sufficient substitute for the juice of summer herbs, they must at this time be supplied with water; but so placed that they cannot overset it into their beds. I must not omit that occasionally they are much pleased with twigs of hawthorn, and of the common briar, eating even the very wood when it is of considerable thickness."

It appears from a memorandum found among Mr. Cowper's papers, that his last hare died in March 1786, aged eleven years eleven months. She died of mere old age, and apparently without pain.

> If I survive thee I will dig thy grave;
> And when I place thee in it, sighing, say,
> I knew at least one hare that had a friend.
>
> THE TASK.

BEAVER.

GENERIC CHARACTER.

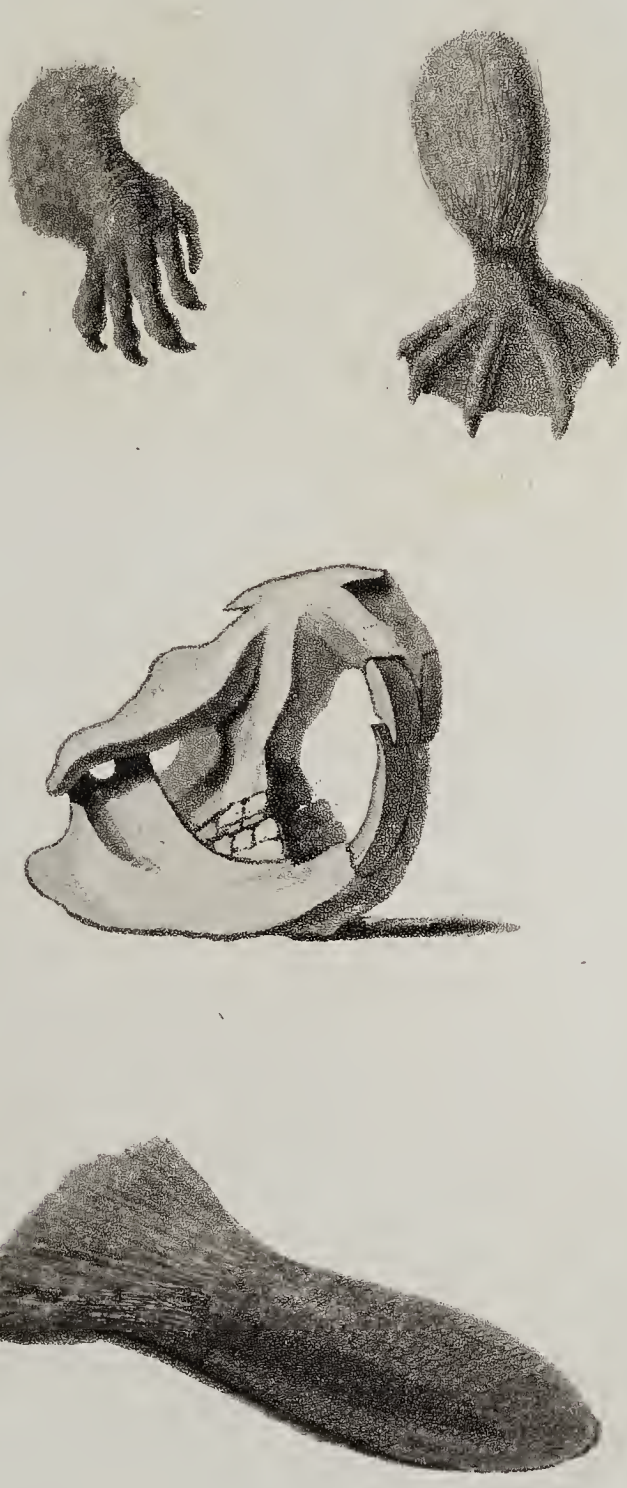
Two cutting teeth in each jaw.
Five toes on each foot; hind feet webbed.
Tail compressed, and covered with scales.

SPECIFIC CHARACTER.

CASTOR FIBER. . C. cauda ovata, plana, calva. *Linn. Syst. Nat. Gmel.* 1. p. 124.
Tail nearly oval, flat, and bare.
Castor castanei coloris, cauda horizontaliter plana. *Briss. Quadr.* p. 133.

COMMON BEAVER. *Catesb. Carol. App.* p. 29. *Sm. Buff.* v. 5. p. 21. pl. 105. *Penn. Hist. Quadr.* ed. 3. v. 2. p. 114. pl. 71. *Penn. Arct. Zool.* v. 1. p. 98. *Bew. Quadr.* p. 383. *Shaw. Gen. Zool.* 2. pl. 128.

COMMON-SIZED beavers are about three feet long, and twelve or fifteen inches broad. Their skin in the northern regions is generally black, but it brightens into a reddish tincture in temperate climates; and as they advance to the southward the beauty of their fur decreases. In the Leverian Museum there is one quite white. Among the Illinois



SCULL, FEET AND TAIL OF THE BEAVER.

Designed by W. Daniell.

Published by Messrs Cadell & Davies, London, March 1 1807.

they are tawny, and even as pale as straw-colour. They are covered with two sorts of hair, one long, and the other a soft down; the latter, which is an inch in length, is extremely fine and compact, and accommodates the animal with a necessary warmth. The long hair preserves the down from dirt and humidity.

These creatures are found from 30 to 60 degrees of northern latitude, and particularly abound round Hudson's Bay; from whence they stretch as low as Carolina and Louisiana. They have been traced from Hudson's Bay and Canada to 120 degrees of west longitude; and have been found, though in an unsociable state, in Lapland, Norway, and Sweden.

The beaver has four bags under his intestines impregnated with a resinous liquid, which, when it is ejected, settles into a thick consistence, and becomes the castor of the shops, so long celebrated for the cure of nervous and spasmodic disorders. This substance loses some of its virtue by long keeping, and becomes black. The Americans used to strip the long hair from the beaver's skin, and manufacture the down into stockings, caps, and stuffs; but these have been found liable to harden like felt, and are therefore disused in most places; so that at present the beaver is used for little else than hats or furs. According to Mr. Pennant, the manufacture of hats from the fur of these animals began in England in the reign of Charles the First, when the manufacture was regulated, 1638, by proclamation;

in which is an express prohibition of using any materials except *beaver stuff* or *beaver wool*; and the hats called demi-castors were forbidden to be made, unless for exportation. Since that time, the demand for furs has become so great, that the imports from America into the ports of London and Rochelle, of beaver skins *alone*, as far back as the year 1743, was,

Into the port of London -	26,750
Into Rochelle - -	127,080
	153,830

It has been mentioned as a fact, that the beaver skins are most valuable when the wild natives of the country have lain upon them a considerable time; for by this means the long hair falls off, and the down becomes compact and moist by transpiration, and consequently fitted to be manufactured.

This sagacious animal is furnished with three implements well calculated for the purposes they are intended to fulfil. These are his teeth, his paws, and his tail. His teeth are strong, and deeply riveted into his jaws, with a strong and crooked root: with these he cuts, as well the wood with which he builds as that which furnishes him with his food. His fore feet resemble those of such animals as hold what they eat in their paws; as apes, for instance, and rats, and squirrels: with these feet he digs, softens, and works the clay, which we shall presently see become of great service to him. His hind feet are accommodated with membranes like

those of ducks and other water-fowl. This makes it evident that the Author of Nature intended the creature should be amphibious. His tail is about a foot long, almost flat, entirely covered with scales, supplied with muscles, and said to be perpetually lubricated with oil or fat. This animal, who is an architect from his nativity, uses his tail instead of a hod for the conveyance of his clay or mortar, and a trowel to spread and form it into an incrustation: the scales prevent these materials from penetrating the tail with their coldness and humidity.

The beavers inhabit the same mansion in great numbers, unless violent heats or inundations, the pursuits of hunters, scarcity of provisions, or the extraordinary increase of their offspring, oblige them to separate. One would readily suppose that they would fix their residence on the banks of one of the large rivers or lakes which are so abundant in America; but no, their sagacity informs them of the precarious tenure of such dwellings, which are liable to be overthrown by every flood. They therefore choose a situation by the side of some little rivulet, where they can form a sufficient reservoir of water, and have nothing to fear, but from land floods or the sudden melting of the snows. When the beavers have determined on the spot, they begin with building a mole, or causeway, in which the water may rise to a level with the first story of their habitation. This causeway, at the foundation, may be ten or twelve feet in thickness. It descends in a slope on the side next the water, which, in propor-

tion to its elevation, gravitates upon the work, and presses it with a strong tendency towards the earth. The opposite side is raised perpendicular like our walls, and the slope, which at its basis is twelve feet broad, diminishes towards the top, whose breadth does not exceed two feet. The materials of this work are wood and clay. The beavers, with an admirable facility, cut the pieces of wood, some as thick as one's arm, others as large as one's thigh, and from two, to four, five, or six feet in length, and sometimes more, in proportion to the ascent of the slope. They drive the extremity of these very near each other into the earth, and take care to interlace them with other stakes more slender and supple. But as the water, without some other prevention, would glide through the cavities and leave the reservoir dry, they have recourse to a clay, which they perfectly know how to procure, and with which they close up all the interstices both within and without, and this effectually prevents the water from oozing through. They continue to raise the dike in proportion to the water's elevation and plenty. They are likewise very sensible that their materials are not so easily transported by land as by water, and therefore take the opportunity of its increase to swim with mortar placed on their tail and stakes of wood between their teeth, to every place where they have occasion for these materials. If the violence of the water, or the footsteps of hunters who pass over their work, damage it in any degree, they immediately repair the fracture, visit all the

edifice, and, with indefatigable application, refit and adjust whatever happens to be disconcerted. But, when they are too frequently persecuted by the hunters, they only work in the night, or else discontinue their labours. However, they are so strongly attached to their haunts, that they must be sadly plagued indeed, before they will quit them. "There is a strong instance," says Charlevoix, "on the road between Montreal and Lake Huron, which travellers, through wantonness, annually molest, yet is always repaired by the industrious inhabitants."

When the causeway or dike is completed they begin to form their cells, which are round or oval apartments, divided into three partitions, raised one above another. The first is sunk below the level of the dike, and generally full of water; the other two are formed above it. They raise this structure in a very solid manner, on the edge of their causeway, and always in stories, that, in case the water should ascend, they may dwell in a higher situation. If they find any little island near the reservoir, they fix their dwelling there, which is then more solid, and they are less incommoded by the water, in which they are not capable of continuing beyond a certain time: but if they are not favoured with this advantage, they drive stakes into the earth with their teeth, to fortify the building against the winds and water. Mr. Pennant describes two openings to each house, one towards the land, and the other communicating with the water, for the con-

veniency of getting to their magazine of provisions in frosty weather:—"This orifice is formed so as to be beyond the thickness of the ice, for they lodge their provisions under the water, and dive and bring it into their house according as they want it." Captain Cartwright, however, whose residence of nearly sixteen years on the Labrador coast gave him every opportunity he could desire of studying this extraordinary animal, assures us that their habitations have but one hole, which is always next the water. They sometimes build their houses entirely on the dry land, and sink ditches five or six feet deep, in order to descend to the water. They employ the same materials and industry in the structure of their dwelling as they use for the causeway. The walls of the building are perpendicular, and two feet thick. As their teeth are more serviceable than saws, they cut off all the projections from the wood that shoots out beyond the perpendicular of the wall; after which they work up a mixture of clay and dry grass into a kind of mortar, with which, with the aid of their tails, they rough-cast the out- and insides of their work.

The edifice is erected on piles, and rises either of a round or oval figure; the top is arched, which gives it the appearance of a dome on the outside, and within it resembles an oven. The dimensions are proportioned to the number of the intended inhabitants. Twelve feet in length and ten in breadth are sufficient for eight or ten beavers. They build their houses of earth, stones, and sticks, cemented

together with great art and ingenuity. Each house contains from two to thirty beavers. Every beaver forms its own bed of moss; and each family fills its magazine with provisions against the winter, which, as we have before remarked, they keep under water, and bring into their apartments as they want them. It has been asserted for a truth, that there have been found above four hundred of these creatures in different lodgments communicating with each other. But these popular societies are very rare, because they are too unmanageable and tumultuous, and the beavers are generally better acquainted with their own interests. From ten to twenty-five of these houses are generally built; sometimes a few more.

The inhabitants of these little mansions are gifted with a natural arithmetic, which enables them to proportion the place and provisions to the necessities of the company; and as it is customary for every family to continue in constant possession of their own habitation, they never charge themselves with unnecessary expenses for any accidental guests.

All these works, especially in the cold regions, are completed in August or September, after which period they furnish themselves with provisions. During the summer season they regale themselves with all the fruits and plants the country produces; but on the approach of winter the tenants of each house are fully employed in stocking the magazine with the bark and boughs of the sassafras,

ash, plane, and other trees, which they cut into lengths from three to six feet; the larger ones are conveyed by several beavers to the magazine, and the smaller by a single animal; but they take different ways. Each individual has his walk assigned him, to prevent the labourers from being interrupted by their mutual occasions. The dimensions of their pile of timber are regulated in proportion to the number of the inhabitants; and it has been observed that the provision of wood for ten beavers comprehended thirty feet in a square surface and ten in thickness. These parcels of wood are not piled up in one continued heap, but laid across one another with interstices between them, that they may the better draw out the quantity they want, and always take the parcel at the bottom, which lies in the water. They cut this wood into small particles and convey it to their cell, where the whole family come to receive their particular share; and they are said to be supplied with a double stomach to facilitate the digestion of such a solid food. During the winter they never leave their houses, unless to fetch provisions from their magazines, and in that season grow extremely fat. In summer the beavers forsake their houses and wander about from place to place, sleeping every night on a bed which they prepare of sticks shred fine, under the shelter of some bush near the water-side. Notwithstanding the amazing sagacity of these animals, they are sometimes wrong in the choice of their

situations; as they have been known to fix their dwellings in a pond where, from want of food, they have all died with hunger; and at another time, they have chosen a flat piece of ground, by the side of the water, where a sudden thaw has swelled the stream to such a height, that with resistless force the whole colony has at once been swept away.

Beavers breed once a-year, bring forth about the latter end of winter or beginning of spring, and have two or three at a birth: they are exceedingly fond of their young, and so affectionate to each other that the two young beavers mentioned by Mr. Pennant, which were taken alive and brought to a neighbouring factory in Hudson's Bay, were preserved for some time, and throve very fast, till one of them was killed by an accident. The survivor instantly felt the loss, began to moan, and abstained from food till it died. The hunters, who are sensible that these creatures love green wood better than old, place a parcel of the former about their lodge, and then have several devices to ensnare them. Sometimes in long traps baited with poplar sticks, laid in a path near the water; and so delicate is the beavers' sense of smelling, that unless the Indians wash their hands before they bait the traps, the sagacious animal is sure to shun the snare. When the winter grows severe, they sometimes break the ice; and when the beavers come to the opening, for the benefit of the fresh air, they kill them with hatchets; or make a large aperture in the ice, and cover it with a very strong net, and then overturn the lodge;

upon which the beavers, who think to escape in their usual way, by flying to the water, and emerging at the hole in the ice, fall into the snare, and are taken.

There is a variety of the beaver which, from want of sagacity, or inclination, to form a habitation like the others, live in an unsociable solitary manner. These beavers are called terriers; they either burrow in the banks of rivers, or make their abode in caverns dug in a rising ground, either on the shore, or at some distance from the water, to which they scoop out subterranean trenches from their cavern, which descend from ten to a hundred feet in depth. These trenches furnish them with retreats situated at unequal heights, wherein they enjoy a shelter from the water when it ascends. They also form their winter magazines of provision, but make their beds of chips instead of moss, under which they nestle upon some grass.

It has been affirmed that the beaver, being an aquatic animal, could not live entirely upon land; but the notion is without any real foundation; for the young beaver sent Buffon from Canada was always kept in the house; and, at first, could not be induced, without difficulty, to enter the water; however, after having been forcibly retained there a few minutes, it became easy, and seemed to like its situation so well that it did not attempt to get out, and when left at liberty would frequently return to its native element. "One day," says Buffon, "he escaped, and descended by a stair into the

subterraneous vaults in the royal garden. He continued for some time to swim in the stagnant water in the bottom of these vaults. However, as soon as he saw the light of the torches which were brought to search for him, he returned to those who called him, and allowed himself quietly to be taken."

The figures which accompany this description were taken from two American beavers, and are the only drawings that have ever been made of them; naturalists in this country having, almost invariably copied Buffon. These animals, which are now exhibited at Exeter Change *, were brought from Canada about five years ago, and have continued healthy ever since; they feed them on bread, greens, and fresh-water fish. We noticed their manner of feeding; the keeper occasionally giving them some bread during our stay, which they took with their fore feet, rising almost upright upon their hind legs for that purpose, and at the same time making a plaintive noise, like the faint crying of a young child. They feed in the posture of a rat, holding the bread firmly between their paws till the whole is consumed. The hind feet are very strongly webbed, and covered with short black hair. The tail is much thicker towards the base than the apex, and is about half the length of the body. Buffon tells us "that the continual habit of keeping the tail and posterior parts in the water appears to have changed

* September 1805

the nature of their flesh. That of the anterior part as far as the reins has the taste and consistence of the flesh of land animals; but that of the tail and hinder parts has the odour and all the other qualities of fish. The tail, which is a foot long, an inch thick, and five or six inches broad, is even an extremity, or genuine proportion of a fish attached to the body of a quadruped: it is entirely covered with scales, and with a skin perfectly similar to that of large fishes. The scales may be scraped off with a knife, and after falling they leave an impression on the skin, which is the case with all fishes."

The two animals differ in depth of colour, one being of a much darker brown than the other, though in both the shades grow lighter towards the tail and belly.

These creatures, although confined so long in a space less than six feet square, have not forgotten their old instinctive habits, but busy themselves in peeling the bark from a few willow branches which the keeper occasionally throws into a trough of water for their use.

BEAVER.

Designed by W. Daniell.

Published by Messrs. Cadell & Davies, London March 1, 1809.

PORCUPINE.

GENERIC CHARACTER.

Two cutting teeth in each jaw.
Body covered with sharp quills.
Upper lip divided.

SPECIFIC CHARACTER.

Hystrix cristata.	H. palmis tetradactylis, plantis pentadactylis, capite cristato, cauda abbreviata. *Linn. Syst. Nat. Gmel.* 1. p. 118.
	Fore feet have four toes on each, hind feet five, head crested, tail short.
	Histrix orientalis cristata. *Seb. Mus.* 1. p. 79. pl. 50. f. 1.
Porcupine. . .	*Sm. Buff.* v. 7. p. 69. pl. 208, 209. *Penn. Hist. Quadr.* v. 2. p. 122. *Bew. Quadr.* p. 444. *Shaw Gen. Zool.* pl. 122.

The porcupine is about two feet long. He dwells in large burrows or holes of his own digging, which have a single entrance, and are divided into many apartments. He goes about during the night in search of fruits, roots, and herbs; and is said to be particularly fond of the box-wood shrub. He is shagged all over with hard and sharp hairs of un-

equal length; from two or three to twelve inches, or more. These are about the thickness of stalks of corn, with intermixtures of black and white; they swell towards the middle, and terminate in a point. We are told that, when the porcupine is attacked, he presents his side to his enemy, erects all his darts with a menacing air, and sometimes plunges them so deep in the flesh of the creature by whom he is assaulted, that several of them remain in the wounds, and are detached from his body when he retires. The sockets of these are afterwards filled by others, which are enlarged by time. The power which travellers have said the porcupine possesses, of darting his quills to a distance, is an error, which probably originated from his ability to erect and move them when irritated, and from some of them being but loosely attached to the skin; and, therefore, sometimes falling to the ground. It was probably some of these loose quills that were found by Ellis, at Hudson's Bay, sticking in the mouth of a dead wolf, which was far more likely to be the consequence of *his* voraciousness, than of the porcupine's resentment.

These animals are hunted by the Americans, from whom we learn that they seldom live longer than fifteen years; that the female goes with young seven months, and only brings forth one at a time: that she suckles it about a month, and accustoms it betimes to live, like herself, upon vegetables and the bark of trees: that while under her protection, she is very fierce in its defence; but at other times,

fearful, timid, and harmless. The porcupine never attempts to bite, but is always anxious to evade his pursuers. If hunted by a wolf, he climbs up the nearest tree, and waits there till he has completely exhausted the patience of his adversary: the wolf, being conscious that he is only wasting his time, leaves the porcupine to himself, and seeks out for some more penetrable game. When this animal meets with a serpent, against whom he carries on a perpetual war, he rolls himself up like a ball, concealing his head and feet, and then tumbles upon his enemy, and kills him with his bristles.

Mr. Church gives an account of a live porcupine, which the late Sir Ashton Lever frequently turned on a grass-plat behind his house, to play with a tame hunting-leopard and a large Newfoundland dog. As soon as they were let loose, the leopard and dog began to pursue the porcupine, who always at first endeavoured to escape by flight; but on finding that ineffectual, he would thrust his head into some corner, making a snorting noise, and erecting his spines; with which his pursuers pricked their noses, till they quarrelled between themselves, and thus gave him an opportunity to escape.

Porcupines are found in India, in Tartary, in Persia, and in all parts of Africa. They produce a bezoar, which was very highly valued, and used to sell for an enormous price, when it was the fashion to use that stone as a medicine.

SQUIRREL.

GENERIC CHARACTER.

Two cutting teeth in each jaw.
Four toes before, and five behind.
Tail clothed with long hair.

SPECIFIC CHARACTER.

SCIURUS VULGARIS. S. auriculis apice barbatis, cauda dorso concolore. *Linn. Syst. Nat. Gmel.* 1. p. 145.
Ears tufted at the end, tail the same colour as the back.
Sciurus vulgaris rubicundus. *Klein. Quadr.* p. 53.
Sciurus (vulgaris) rufus, quandoque griseo admixto. *Briss. Quadr.* p. 150. n. 1.

COMMON SQUIRREL. *Sm. Buff.* v. 4. p. 268. pl. 83. *Penn. Hist. Quadr.* v. 2. p. 138. *Bew. Quadr.* p. 352.

THIS active little animal resides in the midst of the tallest trees of the forest, and when alarmed by any noise, or disturbed by any cause whatever, it bounds from tree to tree with great agility; and thus, by travelling along the tops of the forest, completely escapes from the impending danger. In the fork

of one of the larger branches of a great tree the squirrel constructs its nest, by binding together moss, twigs, and dry leaves, in such an artful manner that it will resist the most violent storm. The nest is completely enclosed, except a small opening at top for the animal to creep into; and this very opening is so sheltered from the weather by a conical cover, that the inhabitant remains perfectly dry in the heaviest rain.

In the high northern latitudes the squirrels are red in summer, but change at the approach of winter to a gray. This change of colour is effected gradually, and the furs are greatly esteemed for their exquisite softness. Whenever they are compelled by want of provisions to quit their lofty alpine abodes, they migrate in amazing numbers, and travel directly forwards, with a determination to overcome every obstacle; neither rocks, forests, nor even the broadest waters can stop their progress. If the credit of Linnæus did not give a sanction to what we are going to relate respecting the extraordinary manner in which they cross the broadest rivers, it would hardly be believed.—When they arrive at the edge of the water, and perceive its breadth, they return in a body to the nearest wood in quest of bark, which serves them instead of boats, and upon which they boldly commit themselves to the mercy of the waves, every squirrel sitting on its own vessel, and fanning the air with its tail. In this regular manner they commence their navigation; but although they set out with every

circumstance in their favour, it frequently happens that the whole navy is shipwrecked; for the poor little mariners are not aware of their danger, and are so badly provided against a rough wave, or a slight gust of wind, that they are overset in a moment. The dead bodies are thrown by thousands on the Lapland shore, where the inhabitants collect them for the sake of their flesh and skins.

In North America the squirrels commit the greatest ravages on the plantations of maize. The damage they do the planters is incredible. Hundreds of them will come into a field, climb up the stalks, and eat the sweet corn which is wrapped up in the heads: thus in one night they will destroy that crop which it has cost the poor farmer so much to raise. They are said to swarm in several of the provinces, and often descend in troops from the mountains, clearing the ground as they go of the fallen acorns, nuts, and beech mast, making magazines of the overplus for their winter provisions, in holes which they dig under ground for that purpose. Their hoards, however, frequently fall a prey either to the hogs or the colonists, who seem equally anxious to discover them. On these magazines they place all their dependence, and frequently quit their nests to visit them, always returning with a sufficient quantity of provisions to last them for some time. During the winter this appears to be their only employment, as in that season they do not choose to quit their warm habitations, unless compelled by necessity. Whenever they are observed

to be particularly busy in the autumn, and to run about the woods in greater numbers than usual, it is a certain sign that the weather will soon become severe; for the same instinct that teaches them to defend their nests from the wet, also directs them to provide against the inclemency of the approaching season, by laying in a larger stock than usual, lest the frost and snow should lock up their subterraneous magazines.

A reward of about three-pence a head was once offered in America for their destruction; when in the province of Pennsylvania *alone*, 8000 pounds currency was paid in one year. Therefore the number killed in that time must have amounted to *six hundred and forty thousand.*

DORMOUSE.

GENERIC CHARACTER.

Two cutting teeth in each jaw.
Muzzle furnished with long whiskers.
Ears naked.
Tail long, and covered with hair.
Four toes before; five behind.

SPECIFIC CHARACTER.

Sciurus striatus. S. flavus, striis quinque fuscis longitudinalibus. *Linn. Syst. Nat. Gmel.* 1. p. 150.
Of a yellow colour, with five longitudinal dark stripes.
Sciurus minor virgatus. *Nov. Com. Petrop.* 344.
Sciurus Carolinensis. *Brisson.*
Ground Squirrel. *Lawson Carol.* 122. *Catesby Carol.* 2. 75.
Striped Dormouse. *Penn. Hist. Quadr.* 2. p. 157. n. 355. *Penn. Arct. Zool.* 1. p. 126. n. 54.

This animal inhabits North America, where it is said to be common, particularly in Canada. The French call it Suisse, says Charlevoix, from the skin being marked with black and white, like the

breeches of the Switzers who form the Pope's guard.

This species of dormouse is remarkable for five parallel black lines running along the back, including between them two of a yellowish white. The total length of the animal is about six inches.

We learn from Mr. Pennant that these dormice are extremely numerous; that they live in woods, but never take refuge in the trees unless they are closely pursued; and that they form for themselves habitations under ground, where they pass the whole of the winter. These subterranean dwellings are formed with great art, and consist of long galleries with lateral branches, all of which terminate in spacious apartments, which are calculated for store-rooms for their winter provisions. In these they hoard their stock, which consists of different kinds of food, and each has its separate apartment. In one the acorns are lodged; in another the maize; in a third the hickery-nuts; and in the last their most favourite food, the chestnut. Like the hamster, they are provided with pouches within their cheeks, which are highly serviceable to them in their foraging expeditions, when they intend to convey a quantity of food to their magazines. Kalm mentions a Swede, who, making a mill dike late in the autumn, met by chance with a subterranean walk belonging to these squirrels. He carefully traced their path till he discovered a gallery on one side, like a branch parting from the main stem.

This was nearly two feet long, and terminated in an apartment containing a quantity of fine acorns of the white oak, which the little dormouse had provided for his sustenance in the winter. He soon found another gallery terminated in the same manner, but filled with maize; in a third he discovered a parcel of hickery-nuts; and in the last a large quantity of excellent chestnuts. Pallas informs us, that in Siberia they live chiefly on seeds, particularly on the kernels of the stone pine, which they hoard up to the amount of ten or fifteen pounds in a single magazine.

The winter appears to be passed by these animals in their holes, where they indulge themselves in sleeping and eating, without ever stirring abroad while the weather is severe, unless they are forced from necessity in consequence of a failure of provisions. When this happens they sally forth, and, burrowing under barns and other places where any thing is to be had, commit the greatest devastations. Hunger makes them bold; and if they do not meet with a ready supply in the out-houses, they will enter the dwelling, and even eat the corn in the presence of the farmer.

In the autumn, when grain is abundant, these creatures are very choice in their food; and it is said they will even stuff their pouches with rye, and discharge it again upon meeting with wheat, which they like much better.

They are killed in Siberia with blunt arrows, or

caught in fall-traps, for the sake of their skins,which, however, are not much valued, being used for the lining of ladies' cloaks.

We ought not to dismiss this genus without noticing our *common dormouse*, which is a mild and gentle animal, living in hedges, and making its nest in the hollow of a low tree, where the female brings forth three or four young at a time. In its wild state it forms magazines of provisions for winter use, and passes the inclement season in a state of torpidity, occasionally reviving on a warm sunny day, when it takes a little food, and then relapses into its former state. The nest of the dormouse is made of grass, moss, and dried leaves; it is about six inches in diameter, and open at the top. It would be superfluous to say more about this little creature, as its manners are so well known in a domestic state.

JERBOA.

GENERIC CHARACTER.

Two cutting teeth in each jaw.
Fore-legs very short; hind-legs remarkably long.
Tail very long; tufted at the end.

SPECIFIC CHARACTER.

DIPUS JACULUS. D. pedibus tetradactylis, palmarum unguiculo pollicari. *Linn. Syst. Nat. Gmel.* 1. p. 157.
Four toes on each foot. The two fore-feet have each a claw instead of a fifth toe.
Mus, pedibus posticis longissimis, cauda corpore longiore extremo villosa. *Hasselq. It. Pal.* 198.
Lepus sive Cuniculus indicus; Utias dictus. *Aldr. Quadr.* 395.
JACULUS ORIENTALIS. *Erxl. Mamm.* p. 404. n. 1.
MUS MONTANUS. *Moncon. Egypt.* 288.
GERBUA. *Edw. Av.* pl. 219.

JERBOA. . . *Sm. Buff.* 7. p. 201. *Penn. Hist. Quadr.* 2. p. 164. n. 364. pl. 80. *Bew. Quadr.* p. 364. *Shaw Gen. Zool.* pl. 158.

THIS singular little animal is a native of Egypt, Barbary, and Palestine; it likewise inhabits the deserts between Bassora and Aleppo, and is occasion-

ally found in the sandy tracts between the Don and the Volga. It is somewhat less than a rabbit, and is remarkable for the length of its hind-legs, which enable the animal to spring six or eight feet at a bound. The body of the jerboa is covered with hair of a pale tawny colour; the breast and belly are whitish, and there is an obscure dusky band across the upper part of the thighs. The tail is very long, and has a bushy termination; in walking they carry it in the form of an S. The habits of these animals, as far as respects their walking, bear some resemblance to a bird, as they are constantly seen upon their hind-legs; the fore-ones being too short to be serviceable to them on the ground: they indeed appear at first sight to have only two legs, as they generally conceal the fore-feet among the hair.

Jerboas are animals of mild and gentle manners; they live on grain and herbage like the hare, and in the higher latitudes provide a warm nest against the rigours of the winter season. We learn from Mr. Pennant that they burrow under ground, and in accomplishing their purpose use both the teeth and fore-feet, flinging the earth behind them as they proceed, so as to form a heap at the entrance. The burrows are many yards long, and are conducted by the little animals in an oblique and winding direction; but are seldom more than half a yard below the surface. At the end of this subterranean habitation is situated the nest, in which they deposit the purest herbs. Their caverns have

but one entrance; yet taught by a wonderful instinct to provide against danger, they make, from their nest, another passage to within a very small space of the surface, which in case of necessity they can burst through, and so escape.

It has been observed of these animals, that they sleep rolled up, with their head between their thighs: that when kept in a stove and suddenly removed from the heat, they seem quite stupefied, and for a time scarcely find the use of their limbs. In the evening they leave their holes, and continue abroad till the return of day. They are very sensible of the approach of danger, and when alarmed immediately take to flight, and bound across the plain with such swiftness that it is exceedingly difficult to overtake them. In making their escape they do not go straight forwards, but turn from side to side in search of a burrow; which, when found, they enter without ceremony, whether it is their own or that of another. When surprised, they will sometimes go on all fours; but this seems unnatural to them, as they soon recover their former attitude.

These active creatures are easily tamed, and when domesticated seem very sensible of cold, always seeking a warm corner, and wrapping themselves up in hay on the approach of bad weather. Sonnini kept six of these little animals for some time, confined in a cage, without being able to observe that they were actuated by any particular passions; even their gentleness was neither amiable nor in-

teresting; it appeared to him to be merely the effect of a cold and complete indifference, approaching to stupidity.

In a wild state they are said to be particularly fond of tulips; and feed, about the lake Baikal, on the bulbs of the *lilium pomponium*. They are supposed to bring forth about eight young at a time, and to sleep the whole winter without nutriment. It is the opinion of Mr. Pennant, that animals of this genus were the two-footed mice, and the Egyptian mice, of the antients, which were said to walk on their hind-legs, and use their fore-feet instead of hands. In support of this opinion he has figured a gold coin, on the reverse of which appears the jerboa at the bottom of the plant sylphium, which, together, were used to denote the country of Cyrene, where both were found.

The Arabs reckon their flesh a delicacy, and are very expert in digging them out of their holes.

We are indebted to major-general Davies for a new species of jerboa, about the size of a small mouse, which he caught, after an hour's hard chase, in a field near the falls of Montmorenci. He has named it the jumping mouse of Canada, *dipus canadensis*, and assures us that its activity was so great, that, although assisted by three other gentlemen, he could not take it till it was thoroughly fatigued. The General observes that it took progressive leaps, of three, four, and sometimes five yards, though seldom above twelve or fourteen inches above the surface of the grass. In woods and

shrubby places it has been observed to jump much higher; but in those places it is impossible to take the little animal, as its wonderful agility, assisted by the cover of the underwood, will enable it to elude every pursuit.

In the fourth volume of the Linnæan Transactions, from whence we have this account, there are two figures of the jumping mouse; one represents it in an erect posture, the other in a dormant state. The latter was found by some workmen in digging the foundation of a summer-house in a gentleman's garden about two miles from Quebec, in the latter end of May 1787. It was discovered enclosed in a ball of clay, about the size of a cricket-ball, nearly an inch in thickness, perfectly smooth within, and about twenty inches under ground. The man who first discovered it, not knowing what it was, struck the ball with his spade, by which means it was broken to pieces. The General could not say how long the animal had continued in its dormant state; but as he never observed any of the species after the beginning of September, he very properly concludes that they lay themselves up some time in that month, or beginning of October, when the frost becomes sharp: about the last week in May, or beginning of June, they again make their appearance. From their being closely enveloped in balls of clay, it is evident that they sleep during the winter, and remain for that term without sustenance.

Anxious to renovate his little charge, the General

carried it to his house, where it was laid in a small chip box upon some cotton, and watched with great care, in hopes that in due time the torpid mouse would again return to life; but that not taking place at the season they generally appear, he kept it till he found it begin to smell, and then stuffed it, so as to preserve it in its torpid position. "I am led to believe," says the General, "its not recovering from that state arose from the heat of my room during the time it was in the box, a fire having been constantly burning in the stove, and which in all probability was too great for respiration. I am led to this conception from my experience of the snow-bird of that country, which always expires in a few days after being caught, (although it feeds perfectly well,) if exposed to the heat of a room with a fire or stove; but being nourished with snow, and kept in a cold room or passage, will live in the middle of summer."

The tail of this little creature is much longer than its body, and has a row of stiff hairs on each side. It sleeps with its head beneath its tail, which lies in a spiral direction, like a snake, upon its breast; the hind-legs at the same time being drawn close to the body. Thus doubled up, the *dipus canadensis* is not so large as a hen's egg.

RAT.

GENERIC CHARACTER.

Two cutting teeth in each jaw.
Four toes before; five behind.
Tail slender; naked, or with very few hairs.

ECONOMIC RAT.

SPECIFIC CHARACTER.

Mus œconomicus. M. cauda subsesquiunciali, auriculis nudis in vellere molli latentibus, palmis subtetradactylis, corpore fusco. *Linn. Syst. Nat. Gmel.* 1. p. 134.
Short tail, ears naked and hid in the fur, body of a tawny colour, three toes on each of the fore-feet.

Œconomic Rat. . *Penn. Arctic Zool.* p. 134. *Shaw Gen. Zool.* pl. 134.

The manners of the common rat are too well known to need any comment; but the habits of this little creature are so curious and interesting, that they well deserve to be noticed. Mr. Pennant, who has given us a very satisfactory account of these animals, says that they inhabit Siberia in vast abun-

dance, from the east side of the Uralian chain, even within the Arctic circle, and quite to Kamtschatka, where they are distinguished for their curious œconomy and vast migrations.

They make their burrows with the greatest skill immediately below the surface of the soft turfy soil, where they form a chamber of a flattish arched form, of a small height, and about a foot in diameter, to which they sometimes add as many as thirty small pipes or entrances. Near the chamber they often form other caverns, in which they lodge their winter stores: these consist of various kinds of plants, even some of species poisonous to mankind. They gather them in summer, harvest them, and even at times bring them out of the cells to give them a more thorough drying in the sun. The chief labour rests on the females. The males during summer go about solitary, and inhabit some old nests, where they live on berries without ever having recourse to their hoards in that season. Like the rest of the genus they multiply quickly, and the female brings two or three young at a time.

No little animals, continues Mr. Pennant, are so respected by the Kamtschatkans as these; for to them they owe a delicious food; and with great joy, about autumn, rob the hoards, and leave there many ridiculous presents by way of amends: they also never take the whole of their provisions, and leave besides a little dried ovaries of fish for their support.

In Iceland, where berries are but thinly dispersed, these little creatures are obliged to cross rivers to make their distant forages. In their return with the booty to their magazines they are obliged to repass the stream, of which Mr. Olaffen gives the following account:—"The party, which consists of from six to ten, select a flat piece of dried cow-dung, on which they place the berries in a heap in the middle; then, by their united force, bring it to the water's edge; and, after launching it, embark and place themselves round the heap, with their heads joined over it, and their backs to the water, their tails pendent in the stream, serving the purpose of rudders." We cannot hesitate to credit this relation, when we consider the wonderful sagacity of the beaver, and think of the management of the squirrel, which, in cases of similar necessity, make a piece of bark their boat, and tail their sail!

The migrations of these animals in certain years is as extraordinary a fact as any in natural-history. Mr. Pennant confines himself to those of Kamtschatka, and informs us that they gather together in the spring in amazing numbers, except the few that are conversant about villages, where they can pick up some subsistence. This makes it probable that the country is over-stocked, and that they quit it for want of food. The mighty host proceeds in a direct course westward, and with the utmost intrepidity swims over rivers, lakes, and even arms of the sea: many

are drowned; many destroyed by water fowl, or rapacious fish; those which escape rest awhile, to bask, dry their fur, and refresh themselves. If the inhabitants find them in that situation, they treat them with the utmost tenderness, and endeavour to bring them to life and vigour. As soon as they have crossed the river Penchim, at the head of the gulf of the same name, they turn southward, and reach the rivers Judoma and Ochot by the middle of July. The space is most surprising, on consulting a map of the country. The flocks are also so numerous, that an observer has waited two hours to see them all pass. Their return to Kamtschatka in October is attended with the utmost festivity and welcome. The natives consider it as a sure prognostic of a successful chase and fishery: the first is certain, as the rats are always followed by multitudes of beasts of prey. They equally lament their migration, as the season is certainly filled with rains and tempests.

Among the principal articles of food in Kamtschatka is the saranne, *Lilium kamtschatcense* Linn.; the women are employed to collect the roots of this plant in the month of August, after which they are dried in the sun and laid up for use. But it is not to the labours of the females alone that the Kamtschatkans are indebted for these roots. The œconomic rat saves them a great deal of trouble. The saranne forms part of the winter provisions of that little animal: they not only gather them in the proper season, and lay them up in their magazines; but at times,

guided by a wonderful instinct, bring them out in sunny weather to dry them, lest they should decay. The natives search for their hoards; but with prudent tenderness leave part for the owners, being unwilling to suffer such useful caterers to perish.

HAMSTER.

SPECIFIC CHARACTER.

Mus Cricetus. M. buccis sacculiferis, corpore subtus aterrimo, cicatricibus lumbaribus detonsis. *Linn. Syst. Nat. Gmel.* 1. p. 137.

Has cheek-pouches; lower part of the body extremely black, with bare places on the sides.

Glis ex cinereo rufus in dorso, in ventre niger, maculis tribus ad latera albis. *Briss. Quadr* p. 166.

Hamster. . *Sm. Buff.* v. 7. p. 178. pl. 223. *Penn. Hist. Quadr.* v. 2. p. 206. pl. 84. *Bew. Quadr.* p. 370. *Shaw Gen. Zool.* pl. 137.

The manners of different animals are as various as their species, and many of them are sufficiently interesting to afford a considerable degree of entertainment: among the number, the little hamster claims a place for his ingenuity in contriving so commodious a habitation; at the same time we must confess he is a detestable little animal, and does not even possess one single social virtue. He has no love but for himself. He attacks and devours every living creature that he is able to conquer, and is even unnatural enough to eat his own species. The fe-

male, who but the hour before was the object of his attachment, he will now devour without remorse, unless she has activity enough to avoid, or strength enough to kill him. He ranks among the small number of those which pass the winter in a torpid state.

The hamsters construct their habitations differently according to their age, sex, or the quality of the ground. The male works an oblique subterranean passage, and disposes of the earth at the mouth, where it lies in a considerable heap. At a distance from this oblique passage there is a hole which descends perpendicularly into the chambers of the lodging. As the mouth of this hole has no earth near it, it is probable that the oblique passage is dug from without, and the perpendicular hole begun from below and continued upward. The male and female have each separate dwellings, though they do not differ materially in their form from each other. The house of the female, however, is the deepest of the two; and besides the oblique opening, it has two, three, or more perpendicular holes, that her young, if numerous, may pass in and out at pleasure. On each side of these perpendicular holes, at a proper distance, the hamsters of both sexes dig from one to four cavities in the form of vaults; and, as these places are intended to serve as magazines for their grain, they always proportion their size according to the quantity of their provisions.

The two holes are well contrived to produce a free circulation through the cavern. They prefer the upright hole for a common entrance, and only use

the inclined passage for the purpose of carrying out the earth. Besides the granaries already mentioned, the hamster always digs a principal chamber, which is lined with straw and serves for a lodging. In the excavations where the female brings forth, there is seldom above one chamber for provisions, which is sufficient to maintain her during the short time of her confinement. She is exceedingly prolific, and produces from six to eighteen at a birth, and this two or three times every year. These little creatures grow so rapidly, that at the age of fifteen days they begin to dig the earth; and soon after are banished by the mother from her habitation, to seek a living where they can. This want of affection in the parent discovers itself in a most dastardly manner when the family is threatened with danger: for then she is only anxious to provide for her own safety, and is totally regardless of her offspring. With an astonishing quickness she digs deeper into the earth, and has presently made a passage, through which the young would willingly follow; but the unnatural mother, deaf to their cries, even shuts the hole she has made and prevents their escape.

About the end of August the hamster begins to prepare for his winter stock; and Nature has admirably calculated him for the purpose, by placing two pouches within his cheeks, each of which will hold a quarter of a pint. These pouches serve as receptacles for the booty, and he fills them till the cheeks seem ready to burst. He brings to his cavern dry clean grain, corn in the ear, peas and beans in the

pods, and afterwards removes the husks through the oblique passage. When the magazines are filled, which often contain twelve pounds of grain, he covers them, and carefully shuts up all the avenues with earth, that his retreat may not be discovered: there he remains in perfect tranquillity till the frost becomes severe, when he gradually sinks into a state of complete torpidity.

The peasants during the winter season go, what they call, a *hamster hunting*; and when they find one of these hoards, which they can only do by the heap of earth that lies near the entrance of the oblique passage, they open the hole and discover the little hamster lying upon a bed of soft straw, with his head bent under his belly between the two forelegs, while those behind rest upon his muzzle. This state of temporary death is so complete, that when the eyelids are forced open they instantly close again. The whole body feels as cold as ice. All the limbs are stiff, and respiration is no longer to be perceived. Upon dissecting the animal in this situation, the heart indeed is seen to contract and dilate, but with so slow a motion that the pulsations do not exceed fifteen in a minute; the fat appears coagulated; the intestines are cold, and so totally lost to all sense of feeling, that the application of spirit of wine or oil of vitriol is not sufficient to awaken him entirely from his lethargy, though he sometimes opens his mouth, as if he wanted to respire.

It appears that cold alone is not the cause of this animal's torpidity; he must likewise be excluded

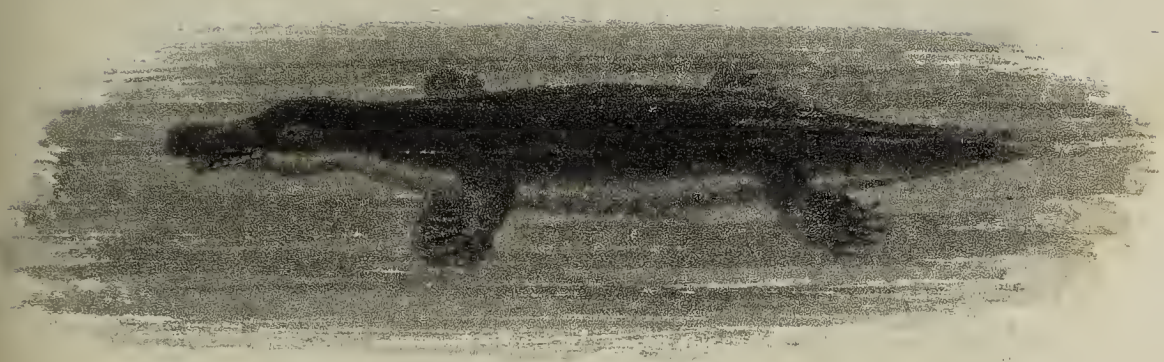
from all communication with the external air. For we are assured, that when a hamster is shut up in a cage filled with earth and straw, and exposed in winter to a degree of cold sufficient to freeze water, he never becomes torpid: but when the cage is sunk four or five feet below the surface of the earth, and completely secured against the access of the air, the animal will soon become as completely torpid as if he had been in his own burrow.

At the appointed time in the spring for the revival of the hamster, he gradually begins to show some signs of returning animation. His cold and rigid limbs begin to relax; the blood again circulates through the lungs; and he sighs deeply, but at long intervals. After some time his legs begin to move, he opens his mouth and makes a rattling noise. By and by, he opens his eyes, and tries to get upon his legs; but those members have been so long unused to support him, that his movements are reeling and unsteady, like those of a person exceedingly intoxicated. At length, however, he recovers himself sufficiently to stand with firmness, and gradually begins to walk, to eat, and to pursue his usual habits.

This active and ferocious little creature seems to be actuated by such a rage for fighting, that he attacks every animal that comes in his way, without at all regarding the size of his enemy; and it is said, that rather than yield he will suffer himself to be beaten to pieces with a stick. He will fly at a horse that happens to come too near him, and hang by

his nose so firmly, as not to be disengaged without the greatest difficulty. This ferocious temper will not allow him to live in peace with any other animal. Two hamsters will attack each other and fight most furiously; but the longest combats are generally between a male and female. After one or two rounds they retire to one side in order to take breath; and when they find themselves sufficiently recovered, they renew the combat, and continue engaged till one of them is killed.

The males always exceed the females in size, and some weigh from twelve to sixteen ounces. The females generally weigh from four to six. They inhabit many parts of Germany, Poland, Austria, and Silesia; they are likewise found in all the temperate parts of Russia and Siberia; and they swarm to such a degree near Gotha, that Mr. Sulzer informs us that in one year 11,574 skins, in another 54,429, and in a third 80,139, have been brought to the town-house. The quantity of grain they destroyed made it necessary to proscribe them and the hunters find their account in the employment, as, independent of the furs, which are of value, they frequently get a good stock of grain from their burrows.



PLATYPUS.

GENERIC CHARACTER.

Mouth shaped like the bill of a duck.
Feet webbed.

PLATYPUS ANATINUS. . . *Vivarium Naturæ*, tab. 385.

THE DUCK-BILLED PLATYPUS. *Naturalists' Miscellany*, pl. 385.
Shaw Gen. Zool. v. 1. p. 228. pl. 66.

NATURALISTS received this animal with the utmost caution when it was first brought from New Holland. The conformation of the creature was so new, and the appearance of deception so strong, that it was not till after two more specimens were sent over by Governor Hunter to Sir Joseph Banks, that its

singular beak was allowed to be naturally attached to its head. Dr. Shaw is the only naturalist who has hitherto described the platypus in a satisfactory manner: and as he had every opportunity he could desire of examining the animal, and has drawn up the account with his usual accuracy, we shall beg leave to avail ourselves of his words:

"Of all the mammalia yet known, the platypus seems the most extraordinary in its conformation; exhibiting the perfect resemblance of the beak of a duck engrafted on the head of a quadruped. So accurate is the similitude, that, at first view, it naturally excites the idea of some deceptive preparation by artificial means; the very epidermis, proportion, serratures, manner of opening, and other particulars of the beak of a shoveler, or other broad-billed species of duck, presenting themselves to the view: nor is it without the most minute and rigid examination that we can persuade ourselves of its being the real beak or snout of a quadruped.

"The body is depressed, and has some resemblance to that of the otter in miniature: it is covered with a very thick, soft, and beaver-like fur, and is of a moderately dark brown above, and of a subferruginous white beneath. The head is flattish, and rather small than large; the mouth or snout, as before observed, so exactly resembles that of some broad-billed species of duck that it might be mistaken for such: round the base is a flat circular membrane, somewhat deeper or wider below than above, viz. below near the fifth of an inch, and above

about an eighth. The tail is flat, furry like the body, rather short, and obtuse, with an almost bifid termination: it is broader at the base, and gradually lessens to the tip, and is about three inches in length; its colour is similar to that of the body. The length of the whole animal from the tip of the beak to that of the tail is thirteen inches; of the beak, an inch and half. The legs are very short, terminating in a broad web, which on the fore-feet extends to a considerable distance beyond the claws; but on the hind-feet reaches no further than the roots of the claws. On the fore-feet are five claws, straight, strong, and sharp-pointed; the two exterior ones somewhat shorter than the three middle ones. On the hind-feet are six claws, longer, and more inclining to a curved form, than those on the fore-feet: the exterior toe and claw are considerably shorter than the four middle ones: the interior or sixth is seated much higher up than the rest, and resembles a strong sharp spur. All the legs are hairy above: the fore-feet are naked both above and below. The internal edges of the under mandible (which is narrower than the upper) are serrated or channeled with numerous striæ, as in a duck's bill. The nostrils are small and round, situated about a quarter of an inch from the tip of the bill, and about the eighth of an inch distant from each other. There is no appearance of teeth: the palate is removed, but seems to have resembled that of a duck: the tongue also is wanting in the specimen. The ears, or auditory foramina, are placed about an inch beyond the

eyes: they appear like a pair of oval holes of the eighth of an inch in diameter, there being no external ear. On the upper part of the head, on each side, a little beyond the beak, are situated two smallish oval white spots; in the lower part of each of which are imbedded the eyes, or at least the parts allotted to the animal for some kind of vision; for, from the thickness of the fur, and the smallness of the organs, they seem to have been but obscurely calculated for distinct vision, and are probably like those of moles, and some other animals of that tribe, or perhaps even subcutaneous; the whole apparent diameter of the cavity in which they are placed not exceeding the tenth of an inch.

"When we consider the general form of this animal, and particularly its bill and webbed feet, we shall readily perceive that it must be a resident in watery situations; that it has the habits of digging or burrowing in the banks of rivers, or under ground, and that its food consists of aquatic plants and animals. This is all that can at present be reasonably guessed at: future observations made in its native regions, will, it is hoped, afford us more ample information, and will make us fully acquainted with the natural history of an animal which differs so widely from all other quadrupeds, and which verifies in a most striking manner the observation of Buffon, viz. that whatever was possible for nature to produce, has actually been produced.

"On a subject so extraordinary as the present, a degree of scepticism is not only pardonable, but

laudable; and I ought perhaps to acknowledge that I almost doubt the testimony of my own eyes with respect to the structure of this animal's beak, yet must confess that I can perceive no appearance of any deceptive preparation, and the edges of the rictus, the insertion &c., when tried by the test of maceration in water, so as to render every part completely moveable, seem perfectly natural; nor can the most accurate examination of expert anatomists discover any deception in this particular."

PINNATED QUADRUPEDS.

ARCTIC WALRUS.

GENERIC CHARACTER.

Two great tusks in the upper jaw, pointing downwards.
Four grinders on both sides, above and below.
Five palmated toes on each foot.

SPECIFIC CHARACTER.

Trichechus Rosmarus.	T. dentibus laniariis, superioribus exsertis remotis *Linn. Syst. Nat. Gmel.* 1. p. 59. Trichechus with distant, exserted tusks. Rosmarus. *Jonst. Pisc.* t. 44. Equus marinus sive Hippopotamus falso dictus. *Raj. Quadr.* 191. *Ellis. Hudson.* t. 6. f. 3. Wallross. *Martens Spitsb.* 78. t. 1. f. B.
Arctic Walrus. . .	*Sm. Buff.* v. 7. p. 354. pl. 256. *Penn. Hist. Quadr.* 2. p. 266. pl. 97. *Bew. Quadr.* p. 467. *Shaw Gen. Zool.* pl. 68.

In all transitions from one kind to the other, there is to be found a middle race of animals, that seem to partake of the nature of both, and that can precisely be referred to neither. This observation is strictly true when applied to the walrus, the seal,

and the whale-tailed manati; who together form a connecting link in the great chain of nature, that gradually descends till we lose the quadruped in the fish.

The body of the arctic walrus is very thick in the middle, and lessens gradually towards the tail. The skin, which is two inches thick about the neck, and half that substance in the other parts of the body, is covered with short hair of a mouse colour. It has a round head, and two little fiery eyes sunk a finger's depth in the sockets; the mouth is very small, and surrounded with great whiskers composed of transparent bristles as thick as a straw. Two large tusks, bending downwards, are seen in the upper jaw. In the icy sea, where these creatures are rarely molested, and consequently attain their full size, a single tusk has been known to weigh twenty pounds. The legs of the walrus are very short, and the feet are webbed, with a small blunt nail on each toe. The larger animals of this species have sometimes been known to measure eighteen feet in length, and to weigh from fifteen hundred to two thousand pounds.

These animals are generally seen collected together upon a floating piece of ice, where they lie as close to each other as possible, and upon the least alarm plunge into the water and disappear. Sea plants, fish, and shells, form their principal food; which they collect with the assistance of their great teeth. They are said to be perfectly harmless, except when wounded or attacked; then indeed they become exceedingly fierce and vindictive, plunging with their

young into the sea; and, after having placed them in safety, returning with the utmost fury to the charge. Upon these occasions they will attempt to sink the boat with their long teeth, or to overset it by rising underneath. These attacks are truly formidable; for the whole herd will follow the boat till they lose sight of it, roaring in a dreadful manner, and gnashing their teeth with great violence.

Captain Cook has left us the following account of the arctic walrus, in his last voyage to the icy continent of America: "They lie in herds of many hundreds, huddling over one another like swine; and roar or bray so very loud, that in the night, or foggy weather, they gave us notice of the vicinity of the ice before we could see it. We never found the whole herd asleep, some being always upon the watch. These, on the approach of the boat, would wake those next to them; and the alarm being thus gradually communicated, the whole herd would be awake presently. But they were seldom in a hurry to get away till after they had been once fired at. They then would tumble over one another in the greatest confusion. And if we did not at the first discharge kill those we fired at, we generally lost them, though mortally wounded. They did not appear to us to be that dangerous animal which some authors have described, not even when attacked. They are rather more so in appearance than in reality. past numbers of them would follow and come close, up to the boats; but the flash of a musket in the Van, or even the bare pointing at one of them, would

send them down in an instant. The female will defend the young to the very last, and at the expense of her own life, whether in the water or upon the ice. Nor will the young one quit the dam, though she be dead; so that if one is killed the other is certain prey. The dam when in the water holds the young one between her fore fins."

Mr. Pennant has extracted from Hackluyt's Voyages an account of the famous Octher the Norwegian, who at a very early period, excited by a most laudable curiosity and thirst of discovery, sailed to the north of his country, doubled the North Cape, and in three days from his departure arrived at the furthest place frequented by the horse-whale fishers. From thence he proceeded a voyage of three days more, and perhaps got into the White sea. On his return he visited England, probably incited by the fame of King Alfred's abilities, and the great encouragement he gave to men of distinguished character in every profession. The traveller, as a proof of the authenticity of his relation, presented the Saxon monarch with some of the teeth of these animals, which were at that time highly valued, being used instead of ivory.

Formerly the teeth used to be applied to all the purposes of ivory; but at present they are only killed for the sake of their oil, one walrus yielding about half a ton. The transparent bristles of this creature's whiskers are supposed to possess the power of preventing the cramp, and are for that purpose made into rings, and worn by the seamen. The Greenlanders

put this animal to various uses. They make thread of the tendons; of the skin they make straps; they use the teeth to head their darts, and burn the fat in their lamps.

Polar bears are the avowed enemies of the walrus, and dreadful conflicts frequently ensue between them: the point of dispute is generally a piece of ice, both parties claiming the possession, and neither being willing to give way. In these disputes the walrus is usually victorious, on account of its tusks; though the effects of these battles are very evident, for the hunters rarely find a beast with the long teeth entire.

In the fifty-sixth volume of the Philosophical Transactions, there is a paper by lord Shuldham giving an account of this animal, with which we shall conclude:

"The walrus, or sea-cow as it is called by the Americans, is a native of the Magdalene Islands, St. John's, and Anticosti, in the gulf of St. Lawrence. They resort, very early in the spring, to the former of these places, which seems particularly adapted to the nature of these animals, abounding with escallops of a very large size, and the most convenient landing-places called échoueries. Here they crawl up in great numbers, and remain sometimes for fourteen days together without food when the weather is fair; but on the first appearance of rain, they retreat to the water with great precipitation.

"They are when out of the water very unwieldy, and move with great difficulty. They weigh from

fifteen hundred to two thousand pounds, producing according to their size from one to two barrels of oil, which is boiled out of the fat between the skin and the flesh. Immediately on their arrival the females calve. They carry their young about nine months, and never more than two at a time; seldom more than one.

"The échoueries are formed principally by nature, being a gradual slope of soft rock, with which the Magdalene islands abound, about eighty or a hundred yards wide at the water-side, and spreading, so as to contain near the summit a very large number of these animals. Here they are suffered to come on shore, and amuse themselves for a considerable time, till they acquire a degree of boldness, being at their first landing so exceedingly timid as to make it impossible for any person to approach them.

"In a few weeks they assemble in great multitudes; formerly, when undisturbed by the Americans, to the amount of seven or eight thousand. The form of the échouerie not allowing them to remain contiguous to the water, the foremost are insensibly pushed above the slope. When they are arrived at a convenient distance, the hunters, being provided with a spear sharp on one side, like a knife, with which they cut their throats, take advantage of a side wind, or a breeze blowing obliquely upon the shore, to prevent the animals from smelling them, because they have that sense in great perfection. Having landed, the hunters, with the assistance of good dogs trained for that purpose, in the night-

time endeavour to separate those which are most advanced from the others, driving them different ways. This they call *making a cut*; it is generally looked upon to be a most dangerous process, it being impossible to drive them in any particular direction, and difficult to avoid them; but as the walruses which are advanced above the slope of the échouerie are deprived by the darkness of the night from every direction to the water, they are left wandering about and killed at leisure, those that are nearest the shore being the first victims. In this manner have been killed fifteen or sixteen hundred at a *cut*.

"The people then skin them, and take off a coat of fat which always surrounds them, and dissolve it into oil. The skin is cut into slices of two or three inches wide, and exported to America for carriage traces, and into England for glue. The teeth make an inferior sort of ivory, and are manufactured for that purpose; but very soon turn yellow."

SEAL.

GENERIC CHARACTER.

Six cutting teeth in the upper jaw, and four in the lower.
Two canine teeth in each jaw.
Molares have three knobs on each of their grinding surfaces.
Five palmated toes on each foot.

SPECIFIC CHARACTER.

PHOCA VITULINA. Ph. capite inauriculato et cervice lævi, corpore fusco. *Linn. Syst. Nat. Gmel.* 1. p. 63.
Has no external ears, the neck smooth, the body of a dark brown colour.
Veau marin ou Loup de mer. *Belon. Poiss.* p. 25. f. 26.

COMMOM SEAL. . *Sm. Buff.* v. 7. p. 328. pl. 254. *Penn. Brit. Zool.* v. 1. no. 37. pl. 12. *Penn. Hist. Quadr. v.* 2. *p.* 270. *Bew. Quadr. p.* 469. *Shaw Gen. Zool.* pl. 70.

SEALS live in society, and are found in great numbers in the northern parts of Europe and America. In the Caspian sea they abound, and are said to swarm near the Arctic circle. They are by no means uncommon on most of the rocky shores of this king-

dom, and the capture of them furnishes employment for the inhabitants of Caithness. The immense caverns found in that part of Scotland, which open into the sea, and run some hundred yards beneath the land, are peculiarly calculated for the resort of seals, where they remain undisturbed during the breeding-time, and continue till their young are old enough to go to sea. The entrance to these caves is so narrow as only to admit a boat; but within they are very spacious and lofty. We are informed by Mr. Pennant that in the month of October, or beginning of November, the seal-hunters enter the mouths of the caverns about midnight, and row up to the further end, where they land: each of them being provided with a bludgeon, and properly stationed, they light their torches, and make a great noise, which brings down the seals in a confused body with fearful shrieks and cries. At first the men are obliged to give way, for fear of being overborne; but when the first crowd is past, they kill as many as straggle behind, chiefly the young, by striking them on the nose: a very slight blow on that part dispatches them. When the work is over, they drag the seals to the boat, which two men are left to guard. This is a most hazardous employ; for should their torches go out, or the wind blow hard from sea during their continuance in the cave, their lives are lost. The young seals, six weeks old, yield more oil than their emaciated dams: above eight gallons have been got from a single whelp, which, at the time Mr. Pennant got his information,

sold from sixpence to ninepence the gallon, and the skin from sixpence to a shilling.

The seal has a broad flat head and nose, without any appearance of ears, but there are two small orifices instead of them, through which the sound is conducted; some bristles are seen on each side the nose, and a few are scattered over each eye. The forked tongue with which this animal is provided is sufficient alone to distinguish it from every other quadruped. The whole body is covered with short thick hair, which is frequently spotted like a leopard, and indeed is subject to great variations of colour; some seals being quite white, while others are wholly black; they are frequently of a brown colour, and sometimes of a yellowish white; the legs protrude but a little way from the body, and are not at all adapted for travelling upon land; but to make up for this deficiency nature has given them strong claws to their feet, by means of which they are enabled to climb the rocks, or ascend the top of large stones, where they bask in the sun, out of the reach of the tide. It is while they are thus situated that the hunters frequently shoot them: if they are fortunate enough to escape, they immediately scramble towards the water, flinging the stones and dirt behind them, and making the most bitter lamentations, till they have regained their proper element. Notwithstanding their apparent cowardice, these animals will fight very desperately when wounded, and make a vigorous defence with their feet and teeth till the last.

Seals contribute greatly to the support of many of the people within the arctic circle; among others, the Greenlanders must acknowledge themselves highly indebted to these animals, for furnishing them with the means of dispelling the gloom of their long and dreary winter night. But it is not for their oil alone that the inhabitants have to be thankful: the flesh serves them for food, they soften their fish in the train, they make thread of the sinews; of their entrails they make their windows, and even their shirts, and their boats are covered with the skins.

After having enumerated the several uses to which the Greenlanders put the seals, it is not surprising that they should be anxious to excel in catching them, or to train up their children in the art, since no man is reckoned a true Greenlander, or a beneficial member of the community, who is deficient in this respect.

Mr. Crantz, a gentleman who spent a considerable time in Greenland, and whose observations are to be depended on, says that the Greenlanders have three ways of catching seals; either singly with a bladder, or in company by the *clapper-hunt*, or in the winter on the ice. When the Greenlander sets out properly equipped for the purpose, and finds a seal, he tries to surprise it by getting the wind and sun in his back, that he may not be heard or seen by the animal; he then rows his boat softly towards it, till comes within five or six fathoms, taking the utmost care that the harpoon, line and bladder, lie in proper order. He then throws the harpoon; and if the

Greenlander is fortunate enough to pierce the seal, he must immediately throw the bladder tied to the end of the string into the water. The seal, who dives as soon as wounded, carries with it the hunter's apparatus; but the Greenlander is upon the watch, and the moment he sees the bladder rise again, hurries to the spot, and strikes the seal as soon as it appears, with a lance he carries for the purpose. With this lance he wounds the creature every time it comes to the surface of the water, till it is quite spent. He then kills it; but stops the wound directly to preserve the blood (which he boils with other ingredients, and eats as soup): lastly he makes a hole in the skin and blows it up like a calf, that it may float the better; and having fastened it to the left side of the boat, he rows home with his prize.

In this employment the Greenlander is exposed to the greatest danger of his life: for if the line should entangle itself, as it easily may; or if it should catch hold of the boat, or wind itself round the oar, or the hand, or even the neck, as it sometimes does in windy weather; or if the seal should turn suddenly to the other side of the boat, it would infallibly be overturned by the string and drawn under water. On such desperate occasions the poor Greenlander stands in need of all his art to disentangle himself from the string, and to raise himself up from under the water several times successively; for he will continually be overturned till he has quite extricated himself from the line.

The clapper-hunt is pursued in the following

manner: In the autumn, when, in stormy weather, the seals retire into the creeks or inlets, the Greenlanders cut off their retreat, and frighten them under water by shouting, clapping, and throwing stones; and as often as they rise to the surface to breathe, the people frighten them down again with their clamour; till at last they are obliged to stay so long above water that they fall a prey to the darts of the inhabitants. During this hunt the Greenlanders show a great deal of agility. When the seal rises out of the water, they all fly upon it at the same time, making such a terrible noise that the poor affrighted creature is forced to dive again directly; and the moment it does they disperse as fast as possible, and every one is careful to observe where the seal rises, which is an uncertain thing, and is commonly three quarters of a mile from the former spot. If the animal has a good broad water, three or four leagues each way, it can keep the sportsmen in play for a couple of hours before it is sufficiently spent to permit them to surround and kill it. This is a very profitable diversion for the Greenlanders; eight or ten seals sometimes falling to the share of one man.

Another method of killing seals is practised in Disko, where the bays are completely frozen over in the winter. There is some variation in the manner which the inhabitants pursue to capture the animals. The Greenlander, being well aware that the seals must come occasionally to the surface to breathe, proceeds upon the ice till he finds a hole,

near which he seats himself on a stool, putting his feet on a lower one to keep them from the cold. In this situation he watches very patiently the arrival of a seal, which he instantly pierces with his harpoon, and if necessary enlarges the hole, through which he draws the creature and kills it upon the ice. Sometimes a Greenlander lays himself upon his belly, on a kind of sledge, near a large hole, where the seals come out on purpose to enjoy themselves, and bask in the sun. Near this great hole they make a little one, and another Greenlander puts a harpoon into it with a very long shaft. He that lies upon the ice looks into the great hole, till he sees a seal coming under the harpoon; then he gives the other the signal, who runs the seal through with all his might.

If a Greenlander sees one of these animals lying near its hole upon the ice, he slides along upon his belly towards it, wags his head, and grunts like a seal; while the silly creature, thinking it is one of its innocent companions, suffers the man to come near enough to pierce it with his long dart.

The enterprising French traveller M. Acerbi, in his Journey through Finland, has mentioned an instance of the great danger to which the inhabitants of that country sometimes expose themselves for the sake of the seals' skin and fat.

A few years ago two Finlanders set out in a boat together. Having got sight of some seals on a little floating island, they quitted their boat and mounted the ice, moving on their hands and knees to get

near them without being perceived. They had previously fastened their boat to the little island of ice which they disembarked upon ; but while they were busily engaged in the pursuit, a gust of wind tore it away ; and meeting with other shoals, it was broken to pieces, and in a few minutes entirely disappeared. The hunters were aware of their danger only when it was too late. They were now left without help, without any resource, and without even a ray of hope, on their floating island. They remained two weeks on this frail territory. The heat which diminished its bulk, and also its prominent surface, rendered their situation more alarming every moment. After having suffered the extreme anguish of hunger, till their patience was exhausted, they came to the resolution of plunging together into the sea, and thus ending their misery with their lives. At this critical moment they discovered a sail ; one of them stripped off his shirt, and suspended it on the muzzle of his gun. The signal was observed from the vessel, which was a whale fisher. A boat was sent to their assistance, and by this providential circumstance they were saved from otherwise inevitable destruction.

The Kamtschatkans sometimes take a hundred seals at a time, by placing two or three strong nets across one of the rivers frequented by these animals. After the nets are properly placed, the seals are frightened into them by a number of people in canoes, who row up and down the river making as much noise as they possibly can. As soon as they

are entangled, the people kill them with pikes or clubs; and after having dragged them on shore, they are equally divided among the hunters. The Kamtschatkans are so fond of the fat of seals, that they never make a feast without introducing it as one of their principal dishes. That superstition which has always prevailed amongst the northern nations, is strongly marked in a very singular ceremony used by these people, and noticed by Mr. Pennant.

After the Kamtschatkans take the flesh from the heads of the seals, they bring a vessel in form of a canoe, and fling into it all the skulls, crowned with particular herbs, and place them on the ground. A certain person enters the habitation with a sack filled with sweet herbs, and a little of the bark of the willow. Two of the natives then roll a great stone towards the door, and cover it with pebbles; two others take the sweet herbs and dispose them, tied in little packets. The great stone is to signify the sea shore, the pebbles the waves, and the packets seals. They then bring three dishes of a hash called *tolhoucha*; of this they make little balls, in the middle of which they stick the packets of herbs; of the willow bark they make a little canoe, and fill it with *tolhoucha*, and cover it with the sack. After some time the two Kamtschatkans who had put the mimic seals into the *tolhoucha* take the balls and a vessel resembling a canoe, and draw it along the sand, as if it were on the sea, to convince the real seals how agreeable it would be to them to come

among the Kamtschatkans, who have a sea in their very *justs* or dwellings. And this they imagine will induce the seals to suffer themselves to be taken in great numbers. Various other ceremonies, equally ridiculous, are practised, in one of which they are said to invoke the winds, which drive the seals on their shores, to be propitious.

There are several different species of seal, each of which differs in some respect in its manners, as well as in those peculiar marks which distinguish it from the rest. Among the number, the ursine seal is surrounded by a seraglio of from eight to fifty mistresses; and we are told that he guards them with the jealousy of an eastern monarch. Any attempt to seduce one of his mistresses is followed by an immediate battle; and if he should unfortunately lose the day, his whole seraglio will desert him and follow the victorious hero. Every family keeps separate from the rest, notwithstanding they lie in great numbers on the shore; a household consists of about a hundred and twenty, and any encroachment upon the station of another is attended with the most serious consequences, as they always have recourse to their teeth and claws to settle their differences. With these they fight in a very tremendous manner, inflicting deep wounds that resemble the cut of a sabre. At the conclusion of the engagement they wash off the blood in the sea, and leave the rest to nature.

The female goes with young eleven months, and brings forth one or two at a time. We are assured

by a writer whose veracity has never been questioned, that the cubs are as sportive as puppies, have mock fights, and tumble one another on the ground. That the male parent looks on them with a sort of complacency, parts them, licks and kisses them, and seems to take a greater affection to the victor than to the others. That they are fierce in the protection of their offspring; and, should any one attempt to take their cub, will stand on the defensive, while the female carries it away in her mouth. Should she happen to drop it, the male quits his enemy, falls on her, and beats her against the stones till he leaves her for dead. The same gentleman informs us, that as soon as she recovers, she crawls to his feet in the most suppliant manner, and washes them with her tears; he at the same time brutally insults her misery, stalking about in the most insolent manner. But if the young is entirely carried off, he melts into the greatest affliction, likewise sheds tears, and shows every mark of deep sorrow.

Steller lived at one time for six days in a hovel surrounded by seals, who soon became reconciled to the sight of him. They used to observe his motions with attention, would lie down near him, and even suffer him to take up their cubs. During his stay among them he had an opportunity of observing their quarrelsome dispositions, and was witness to many a battle occasioned by that common cause of dispute, a female. He likewise once saw a duel between two males, which lasted three days; and he

assures us that one of them received above a hundred wounds.

When the Kamtschatkans discover a seal on the lonely rocks in the sea, they sometimes shoot it with poisoned arrows. This is a very barbarous practice; as the seal immediately plunges into the sea, where the salt water so increases the pain that the distracted creature is obliged to seek the land in hopes of some relief. Here an end may possibly be put to its sufferings by the hunters, who, if they find a good opportunity, will transfix it with their lances; if not, they unfeelingly leave it to die of the poison, which never fails to accomplish its purpose in twenty-four hours; during which time the dying seal suffers the most dreadful agony.

The skin and fat of the seal are now become a very considerable article of commerce. The skin, properly tanned, is of great use in the manufactory of boots and shoes; and the oil, made from the fat, greatly contributes to supply the magnificent profusion of lamps with which our immense capital and its neighbourhood abound.

MANATI.

GENERIC CHARACTER.

Pinniform fore legs, hind parts ending in a tail horizontally flat.

Two teats between the legs.

SPECIFIC CHARACTER.

TRICECHUS BOREALIS. . T. nudus, pedibus nec digitis nec unguibus instructis. *Linn. Syst. Nat. Gmel.* 1. p. 61.

Without hair; the feet have neither toes nor nails.

WHALE-TAILED MANATI. *Penn. Hist. Quadr.* 2. p. 292. n. 489. *Arct. Zool.* 1. p. 177. n. 81.

THESE animals are only allied to the quadrupeds by the two fore feet or hands; the hinder part of the body being completely cetaceous, or like that of the whale: they can hardly be called amphibious, as they never entirely leave the water, but frequent the edges of the shores to feed on the weeds that grow there. They sometimes are found of an amazing size, as poor Steller can testify; who, during the sad ten months which he unwillingly passed on

Bering's island, had many opportunities of remarking these creatures, and says that a large one will weigh eight thousand pounds. They frequent the shallow and sandy parts of the shores of Bering's and other islands, and go in herds; the old ones driving their young before them, and some keeping on their sides to defend them from harm. Their affection for their young, though very great, seems to be equalled by their attachment to one another. We are assured that when one is hooked the whole herd will attempt its rescue; some will strive to overset the boat, by going beneath it; others will throw themselves upon the rope to which the hook is attached, and vainly attempt to break it; while many will use every effort to force the instrument out of their wounded companion. The poor creature suffers much before it can be landed, as it makes all possible resistance, and clings so firmly to the rocks, that the people on shore who have the end of the rope are obliged to exert all their force to detach it: the skin of the feet is frequently left sticking to the rock, and large pieces often fly off before it can be dragged to land. These animals have no voice, but sigh deeply when wounded.

Their great conjugal affection is thus noticed by Mr. Pennant: "A male, after using all its endeavours to release its mate which had been struck, pursued it to the very edge of the water; no blows could force it away. As long as the deceased female continued in the water, he persisted in his attendance; and even for three days after she was

drawn on shore, and even cut up and carried away, was observed to remain as if in expectation of her return."

They grow to the length of twenty-eight feet, and appear very deformed; the outward skin is described as black, rugged, and knotty, like the bark of an oak. It serves admirably to defend the creature against the sharp edges of the rocks, as it is an inch thick, and so hard as scarcely to be cut with an axe.

WINGED QUADRUPEDS.

BAT.

GENERIC CHARACTER.

Teeth erect, sharp-pointed, and standing contiguous to each other.

Long extended toes to the fore feet, connected together by membranes extending to the hind legs.

SPECIFIC CHARACTER.

VESPERTILIO MURINUS.	V. caudatus, naso oreque simplici, auriculis capite minoribus. *Linn. Syst. Nat. Gmel.* 1. p. 48. Tailed Bat, with the lips and nose simple; ears smaller than the head. Vespertilio murini coloris, auriculis simplicibus. *Briss. Quadr.* p. 158. n. 1.
COMMON BAT. . . .	*Sm. Buff.* v. 4. p. 317. pl. 92. *Penn. Hist. Quadr.* 2. p. 319. *Bew. Quadr.* p. 474. *Shaw Gen. Zool.* p. 123.

Where swallows in the winter season keep,
And where the drowsy bat and dormouse sleep.

GAY.

THE Count de Buffon having one day descended into the caverns of Arcy, to examine the stalactites,

was surprised to find in a place covered with alabaster, and so dark and profound, a kind of earth which was totally different. It was a thick mass several feet in extent, of a blackish matter, almost entirely composed of fragments of the wings and legs of flies and moths, as if immense numbers of these insects had assembled in order to die and corrupt together. This, however, was nothing else but the dung of bats, probably amassed during many years, in a favourite part of these subterranean caverns; for, through the whole of these caverns, which extend nearly half a mile, he saw no other collection of this matter, and therefore imagined that the bats had fixed upon this place for their common abode, because it was reached by a glimmering light from an aperture in the rock; and that they chose not to go further, lest they should be lost in a darkness too profound. Into these immense caverns they retire at the end of autumn, and always assemble in such numbers as to secure themselves from the effects of cold: here they pass the winter without food or motion, in a complete state of torpidity. Some cover themselves with their wings as with a mantle, and suspend themselves by the hind feet from the roof of the caverns; while others stick fast to the walls, or retire into holes, where they remain entranced till the vernal sun once more unlocks the earth, and recalls them into life and action.

The common bat is about the size of a mouse, has long extended toes to the fore feet, connected

by thin broad membranes, extending to the hind legs; and from them to the tail. The membranes are of a dusky colour: a mouse-coloured fur tinged with red covers the body, which is two inches and a half in length; the eyes are very small; the ears like those of a mouse. Bats bring forth in the summer, and are commonly supposed to produce two young at a birth. The female has two nipples, and these are prominent on the breast, somewhat resembling the human. It is observed that the female makes no nest for her young, as most birds and quadrupeds are known to do; but is barely content with the first hole she finds, where she adheres by her hooks, and suffers the young to hang at the breast; to which they fix so firmly when recently born, that they are not to be removed without difficulty. In this manner they continue to suck for a day or two, without altering their position. At length, when the dam begins to be exhausted for want of food, we are told that, before she leaves her hiding-place, she removes her young from her breast, and sticks them against the wall; to which they firmly cling, and patiently wait the return of the parent.

The observation of Buffon, that bats eat the whole of insects, seems to admit of a doubt. Mr. White of Selborne had an opportunity, in the year 1766, of seeing a tame bat, and he has left us the following account of its manner of feeding:

"It would take flies out of a person's hand; if you gave it any thing to eat, it brought its wings

round before the mouth, hovering and hiding its head, in the manner of birds of prey when they feed. The adroitness it showed in shearing off the wings of flies, *which were always rejected,* was worthy of observation, and pleased me much. Insects seemed to be most acceptable, though it did not refuse raw flesh when offered; so that the notion that bats go down chimneys and gnaw men's bacon, seems no improbable story. While I amused myself with this wonderful quadruped, I saw it several times confute the vulgar opinion, that bats, when down on a flat surface, cannot get on the wing again, by rising with great ease from the floor. It ran, I observed, with more dispatch than I was aware of, but in a most ridiculous and grotesque manner."

The cruel experiments tried by Spallanzani on bats, we consider as disgraceful to humanity, as they could not lead to any useful discovery; and it must surely be at all times beneath the true philosopher, to trifle with the feelings of any being, however low it may rank in the scale of animated nature.

It appears from his experiments, that the eyes of bats are not necessary to guide them in their flight, since he first destroyed them, and then covered the empty sockets with leather: even in this state the wretched animals continued to fly round the room, without touching the sides or striking against any thing; they likewise flew out of the door without touching the architraves. The Abbé, that he might be certain this ability to dispense with the organ of

sight was not confined to the common bat, tried it on several other species, and, we are told, with the same success. He also tells us, that flying through the middle of a sewer which turned at right angles, the bats regularly bent their flight at the curvature, though two feet distant from the walls. They found a resting-place on the cornice, and even flew through threads hung perpendicularly from the ceiling without touching, though they were scarcely at a greater distance than that of their extended wings; and when the threads were brought nearer, they contracted their wings to pass through them. They equally avoided every obstacle, though the whole head was covered with a varnish made of sandarach dissolved in spirit of wine.

It seems from the observations of Mr. Carlisle, that the sense of hearing greatly assists them in avoiding those obstacles, which they would otherwise, when blinded, strike against. This gentleman, says Dr. Shaw, collected several specimens of the vespertilio auritus, or large-eared bat, and observed that when the external ears of the blinded ones were closed, they hit against the sides of the room, without being at all aware of their situation. They refused every species of food for four days, as did a larger number which were afterwards caught and preserved in a dark box, for above a week. During the day-time they were extremely desirous of retirement and darkness; and, while confined to the box, never moved or endeavoured to get out the whole day; and when spread on the carpet, they

commonly rested some minutes, and then, beginning to look about, crawled slowly to a dark corner or crevice. At sunset the scene was quite changed: every one then endeavoured to scratch its way out of the box; a continued chirping was kept up; and no sooner was the lid of their prison opened than each was active to escape; either flying away immediately, or running nimbly to a convenient place for taking wing. When these bats were first collected, several of the females had young ones clinging to their breasts in the act of sucking. One of them flew with perfect ease, though two little ones were thus attached to her, which weighed nearly as much as the parent. All the young were devoid of down, and of a black colour.

Bats make their first appearance towards the end of spring, or rather early in the summer, when they are to be met with in the dusk of the evening, flitting about the sides of woods, and shady walks, in quest of insects. They likewise frequent the waters where the gnats abound, skimming along the surface, and destroying myriads at a meal.

The woods of South America produce a very formidable bat, the extent of whose wings is about four feet, and the body as large as that of a fowl. This bat, to which Linnæus has given the name of Vampyre, on account of its inclination to suck the blood both of men and cattle, resides in the hollow trunk of some large decayed tree, where it remains till the twilight calls it forth to seek its prey. Many extraordinary accounts have been related respecting

this blood-thirsty animal, and the manner in which it is supposed to proceed to accomplish its purpose. It is said to perform the operation by inserting its aculeated tongue into the vein of a sleeping person, with so much dexterity as not to be felt; at the same time fanning the air with its large wings, and thus producing a sensation so delightfully cool, that the sleep is rendered still more profound, and the unfortunate person reduced almost to death before he awakes.

Captain Stedman, during one of his military excursions through the woods of Surinam, was bitten by one of these creatures while sleeping in his hammock. He was extremely alarmed one morning about four o'clock, when he awoke and found himself weltering in congealed blood without feeling the least degree of pain. He has thus described the manner in which they inflict the wound: "Knowing, by instinct, that the person they intend to attack is in a sound slumber, they generally alight near the feet, where, while the creature continues fanning with his enormous wings, which keeps one cool, he bites a piece out of the tip of the great toe, so very small indeed that the head of a pin could scarcely be received into the wound, which is consequently not painful; yet through this orifice he continues to suck the blood, until he is obliged to disgorge. He then begins again, and thus continues sucking and disgorging till he is scarcely able to fly; and the sufferer has often been known to sleep from time into eternity. Cattle they generally

bite in the ear, but always in places where the blood flows spontaneously. Having applied tobacco ashes as the best remedy, and washed the gore from myself and my hammock, I observed several small heaps of congealed blood all round the place where I had lain, upon the ground; on examining which, the surgeon judged that I had lost at least twelve or fourteen ounces during the night."

There is reason to believe that this thirst after blood is not confined to the bats of one continent, nor to one species, since at Java they seldom fail to attack those persons who lie with their feet uncovered. It is therefore very unsafe to rest either in the open air, or to leave open any entrance to these dangerous animals. In some places they are extremely numerous. Mr. Foster tells us that he has seen 500 at a time, hanging some by their fore and others by their hind legs, in a large tree, in one of the Friendly Islands.

BIRDS.

Reas'ning at every step he treads,
Man yet mistakes his way,
While meaner things, whom instinct leads,
Are rarely known to stray.

COWPER.

THE universe is replenished with life, and every part of nature abounds with its proper animals. We cannot proceed one step without discovering new traces of a wisdom as inexhaustible in the variety of its plans, as in the richness and fertility of the execution. Nothing is more natural than the flight of a bird, to eyes that have been habituated to such a sight, and nothing is more astonishing to a mind disposed to contemplate the phænomenon. A bird in flight is a mass raised aloft, notwithstanding the weight of the air, and the powerful gravitation impressed on all bodies, and which impels them to the earth. This mass is transported, not by any foreign force, but by a movement accommodated to the purpose of the bird, and which sustains it a long

time in a very graceful manner. Another subject of admiration is this: we find that each individual has the same number of wings, and yet we observe they differ materially in their flight. Some launch away in repeated springs, and advance by successive boundings; others seem to glide through the air, or cleave it with an equal and uniform progress. The former merely skim over the earth, while the latter are capable of soaring up to the clouds. Some, again, know how to diversify their flight, to ascend in a right, oblique, or circular line, to suspend themselves, and continue motionless in so light an element as the air; and afterwards precipitate themselves in an instant like a descending stone. In a word, they transport themselves without opposition or hazard, wherever their necessities or pleasures invite them. When we consider them in their habitations, they are still equally surprising; and we are so pleased with the structure of their nests, the solicitude with which they attend their eggs, the mechanism of the egg itself, and the birth and education of the young, that we shall pass them through all these stages, before we proceed to their specification.

The perfect similitude that appears in all the nests of birds of the same species; the difference between the nest of one species and that of another; and the industry, neatness, and precautions which reign through the whole, are matters that well deserve our attention. "In my aviary," says the engaging author of the Spectacle de la

Nature, "my little prisoners cannot make excursions for the necessary materials to build their nests. I, therefore, take care to supply them with every thing I imagine can be agreeable to them, and am curious to observe what composes those nests the children bring me from all parts: accordingly I throw into the aviary sprigs of dry wood, shivers of bark, and dry leaves, hay, straw, moss, down, wool, silk, spiders-webs, feathers, and a hundred other little materials that are all useful in the nests. You would smile to see the inhabitants come to traffic at this fair; one wants a bit of moss, another has occasion for a feather, a third cannot do without a straw; you will see two outbidding one another for a lock of wool, and this sometimes causes great quarrels: however, the difference is commonly adjusted, and each carries what she can to the nest."

Different species of birds build their nests in different situations; one kind will occupy the tops of trees, while another chooses to settle on the ground, under a canopy of grass: but, wherever they dispose themselves, they are always accommodated with a shelter, and either make choice of herbs, or a shady branch, or a double roof of leaves, down the slope of which the rain trickles, without entering into the little opening of the nest that lies concealed below. The nest is raised on more solid materials, that strengthen it with a foundation; for which purpose they make use of thorns, seeds, thick hay, and compact moss. On this first lay, that seems very shapeless, they spread and fold in a round, all

the most delicate materials, which being closely interwoven prevent the access of winds and insects. Each species has a particular taste in the building and furniture of its apartment; and when this is completed, they never fail either to hang the inside with a tapestry of feathers, or quilt it with wool, in order to communicate a convenient warmth around them and their young.

When their supplies fail them, there is scarce any invention to which they will not have recourse for a recruit. The author already mentioned, when he first bred some goldfinches, only furnished them with hay for the structure of their nest; and the female, for want of raw silk or cotton, found out an expedient that surprised him. She began to unplume the breast of the male, without the least opposition from her mate, and afterwards hung all the apartment very artificially with the down.

We cannot help admiring, in this particular instance, the wonderful instinctive qualities of these little creatures. They are inspired by their creator with an imitation of reason, limited indeed to a single point, but admirable in that very limitation. The female is directed by it to construct a nest; she feels assured that she shall lay eggs, and want a place to preserve them from falling, and to cherish them with a genial heat. The same instinct acquaints her, that this heat would not be concentrated round the eggs, were the nest too large, and that the nest would be incapable of containing all the young, were she to give it less dimensions. By

AFRICAN BIRDS NESTS. Pl. I.

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the same rule, she is never mistaken in her time, so as to lay her eggs before she has completed her nest. All this is wonderful, and serves as one among many instances to prove the agency of a wise and powerful Being; "the author in nature," says Paley, "of infinitely various expedients for infinitely various ends, upon whom we must rely for the choice and appointment of means adequate to the execution of any plan which his goodness or justice may have formed, for the moral and accountable part of his terrestrial creation."

The different propensities of animals, says Mr. Barrow, proceeding from the different organs with which nature has furnished them, are no doubt modified and altered according to situation and circumstances. Most of the small birds of Southern Africa, continues this gentleman, construct their nests in such a manner that they can be entered only by one small orifice, and many suspend them from the slender extremities of high branches. A species of loxia, or grossbeak, always hangs its nest on a branch extending over a river or pool of water. It is shaped exactly like a chemist's retort, and is suspended from the head; so that the shank of eight or nine inches long, at the bottom of which is the aperture, almost touches the water. This curious little habitation is made of green grass, firmly put together, and very artfully woven. Another small bird, the Cape titmouse, constructs its luxurious nest of the down of a species of asclepias. This nest is made of the texture of flannel, and the fleecy hosiery is

not more soft. Near the upper end projects a small tube about an inch in length, with an orifice about three-fourths of an inch in diameter. Immediately under the tube is a small hole in the side, that has no communication with the interior part of the nest; in this hole the male sits at nights, and thus they are both screened from the weather. The sparrow hedges round its nest with thorns; and even the swallow, under the eaves of houses, or in the rifts of rocks, makes a tube to its nest six or seven inches in length. The same kind of birds in this part of the world, having nothing to apprehend from monkeys, snakes, and other noxious animals, neglect the same precautions, and construct open nests. Nevertheless, the European species manifest a great degree of ingenuity in the formation of their dwellings, though they are not quite so artfully contrived as the African. The swallow, for instance, constructs a nest entirely different from all others; she wants neither wood, nor hay, nor bands, but knows how to make a kind of plaister, or rather cement, with which she erects a dwelling equally secure and convenient for herself and all her family. In passing over a river or pond, she contrives to wet her wings and breast, after which she sheds the dew over the dust, and then tempers and works it up with her bill. The blackbird and lapwing, after they have made their nest, rough-cast the inside with a small lay of mortar, that glews and supports all below; and by the aid of a little flue or moss, with which they temper it when it is fresh and soft,

form a complete and comfortable apartment, properly calculated to preserve the necessary warmth.

Before we pass to the next stage, we must again return to Africa, and once more avail ourselves of Mr. Barrow's information. This gentleman describes a small bird of the loxia genus, *Loxia socia, Lath. Ind. orn.* which lives in a state of society with the rest of its species. These birds construct a whole republic of nests in one clump, and under one cover. Each nest, however, has a separate entrance on the under side, and has no communication with its neighbour from within. Sometimes one of these clumps of nests will extend a space of ten feet in diameter, and contain a population of several hundred individuals.

"The industry of these birds," says Mr. Patterson, "seems almost equal to that of the bee. Throughout the day they appear busily employed in carrying a fine species of grass, which is the principal material they employ for the purpose of erecting this extraordinary work, as well as for additions and repairs. Though my short stay in the country was not sufficient to satisfy me by ocular proof, that they added to their nests as they annually increased in their numbers; still from the many trees which I have seen borne down by the weight, and others that I have seen with their boughs completely covered over, it would appear that this is really the case. When the tree, that is the support of this aërial city, is obliged to give way to the increase of weight, it is obvious that they are no longer protected, and

are under the necessity of building in other trees. One of these deserted nests I had the curiosity to break down, to inform myself of the internal structure of it; and found it equally ingenious with that of the external. There are many entrances, each of which forms a regular street, with nests on both sides, at about two inches distance from each other. The grass with which they build is called the Boshman's grass; and I believe the seed of it to be their principal food; though, on examining their nests, I found the wings and legs of different insects. From every appearance, the nest which I dissected had been inhabited for many years, and some parts were much more complete than others. This, therefore, I conceive to amount nearly to a proof, that the animals added to it at different times, as they found it necessary, from the increase of their family, or rather of the nation and community." The annexed plate gives an accurate representation of a clump of these singular buildings.

The dam, having so far completed her task, proceeds to lay her eggs, the number of which varies according to the species: some have only two at a time; others four or five, and some eighteen. When the eggs are laid, the male and female brood over them by turns; but this is generally the female's province. And here we must unavoidably admire the impression of a superior reason that acts upon these little creatures. They have no certain knowledge either of what their eggs contain, or of the necessity there is to sit on them, in order to hatch

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them; and yet this animal, who is so active and unsettled at other times, in this moment forgets her natural disposition, and fixes herself on the eggs as long as is convenient; she submits to restraint, renounces all pleasure, and continues almost twenty days inseparable from her brood. The male, on his part, shares and alleviates her fatigue; he brings food to his faithful mate, repeats his journeys without intermission, and waits on her with a collation ready prepared in his bill. He is indefatigable in his attendance, and never discontinues his assiduity unless it is to entertain her with his warbling. Indeed they both so admirably fill their particular departments, that we are at a loss to know, whether the painful perseverance of the one, or the officious inquietude of the other, is most to be admired.

It will here be proper, before we proceed to the brood, to give a description of what the egg contains, as well as of the manner in which the young is there formed, and how it afterwards issues from its confinement. The egg of the hen is best adapted for this purpose, where the parts are sufficiently apparent for us to distinguish them with ease. Besides the yolk and the whites, which are visible to every body, we can see the ligaments that sustain the yolk towards the centre of the egg, and can likewise discover several membranes; one of which enfolds the yolk, another the first white, a third and fourth encloses the whole; and lastly, we see the shell formed for the preservation and defence of the rest. What lies within these inclosures has the first

formation; the shell has the last, and hardens from day to day. The shell enables the mother to discharge the egg without crushing it; while its soft contents preserve the young from all accidents, till it is completely formed, and in a condition to make its appearance. We may even say, that the egg performs to young birds the office of the breast milk, with which the offspring of other animals are nourished, because the little chick who lies in the egg is first sustained by the white, and afterwards with the yolk when the animal has gained a little strength and its parts begin to be fixed. Under the membrane which surrounds the yolk is found a little cicatrice, or white spot, which is only the seed, where the chick resides in miniature. It has all its organs at that time, but they are wrapped up and comprehended in a point. If the smallest portion of that vital spirit, which is destined to animate the mass, be then infused into it, by a process of which we can have no idea; the chick receives life at the same instant, and its whole substance is then in motion. We have no adequate conception, indeed, of a vital spirit; but this expression points out a reality, which is sufficient for our purpose.

When the vital principle has not been infused into this speck, which comprehends not only the first sketch, but every part of the chick, the dam then sometimes lays that egg; but it will contain nothing more than an unprolific nourishment, and will never be a living animal. On the contrary, should this enlivening spirit be transmitted, in the minutest de-

gree, through the pores of those membranes through which such a diversity of aliment has already flowed, it will then open the small vessels of the chick, diffuse a general warmth, and convey a nutrimental fluid to the heart. The structurc of this little muscle enables it to open and dilate, for the reception of what passes into it on one side, and likewise to contract itself for discharging through another orifice what has been already received. The moment the heart begins to beat, the animal is alive, but still continues to receive, by the mediation of the umbilic duct, a flow of nutritious juices, whioh it transmits into the other vessels, whose branches distribute this nourishment through the whole body. All those little canals which were flat before, are now swelled and enlarged; the whole substance imbibes a proper aliment, and the chick begins to grow.

It is almost impossible to distinguish, amidst the fluids that surround it, the nature of its daily progress and changes, till the period when it issues from the shell. But let us not omit one precaution, equally evident and astonishing, and which is observable in the situation of the speck out of which the animal is formed. This minute and globular particle of matter, which is lodged on the film that enfolds the yolk, has always its position near the centre of the egg, and towards the body of the dam, in order to be impregnated with a necessary warmth.

The yolk is sustained by two ligaments, visible at the aperture of the egg, and which fasten it on

each side to the common membrane glued to the shell. Should a line be drawn from one ligament to the other, it would not exactly pass through the middle of the yolk, but above the centre, and would cut the yolk into two unequal parts, so that the smallest part of the yolk, which contains the seed, is of necessity raised towards the belly of the bird who performs the incubation; and the other part, being more gross and weighty, always descends as near the bottom as the bands will permit; by which means, should the egg be displaced, the young could not receive any injury; and whatever may happen, it enjoys a warmth that puts all about it in action, and by degrees completes the disengagement of its parts. As it is incapable of sliding down, it nourishes itself in ease, first with this liquid and delicate white, which is adapted to its condition, and afterwards with the yolk, which affords a more substantial food. By the time the bird has so far increased in size as to fill the shell, his beak is become sufficiently hardened to assist him in breaking through the walls of his prison. This he readily effects, and issues forth fully replenished with the yolk, which nourishes him a little longer, till he has strength enough to get on his feet and seek his own living, or until his parents come themselves to supply him.

Some birds, when they leave the shell, are fed by their parents, while others seek their own provision. The birds who nourish their young have commonly very few; on the contrary, those whose

young feed themselves from their birth, have sometimes eighteen or twenty in a brood, and sometimes more. Of this last kind are quails, pheasants, partridges, and hens. The Creator, who has regulated all things for the best, has wisely ordered this. The dam who charges herself with the care of seeking provisions, has but an inconsiderable brood: were it large, both the parents would be slaves, and the young but indifferently accommodated; while the mother who marches in the van of her progeny, without nourishing them, can conduct twenty as well as four. The following instance of the bounty of Providence relates to ourselves in particular. Those birds who are detrimental to us, and those with whose existence we can easily dispense, are the species who multiply the least: on the contrary, those whose flesh is most salutary, and whose eggs afford the best nourishment, are fruitful to a prodigy.

When the eggs are hatched, and the young have made their appearance, the parents become charged with new cares, till the brood are capable of subsisting without them. Provision must be prepared for eight instead of two. The linnet and the nightingale labour then like the rest; they are up before the sun in quest of provision, sometimes one, sometimes the other, and sometimes both together. They distribute the food with great equality, giving each its portion in its turn, and never feeding the same bird twice. This tenderness of the mothers for their young, operates to a degree that even changes their natural disposition, and new duties pro-

duce new inclinations. A hen when she becomes the parent of a family is no longer the same creature. She was formerly ravenous and insatiable; but at present, if she finds a grain of corn, a crumb of bread, or even something more considerable in quantity, and capable of being divided, she never touches it herself, but gives intelligence to her troop by a note of invitation they all understand. This mother, naturally timorous, and who before knew nothing but flight, seems no longer acquainted with danger, but is so courageous at the head of a troop of chickens, that she will spring at the eyes of the stoutest dog, and defend her offspring to the last.

One instance will be sufficient to show the anxiety of the mother for the welfare of her young, and the instinctive sagacity of these little creatures for their own preservation in the time of danger. When a hen turkey appears at the head of her young, she is sometimes heard to send forth a very mournful cry, the cause and intention of which are unknown. The brood immediately squat under bushes, grass, or whatever else presents itself for their purpose. They entirely disappear; or, if they have not a sufficient covering, they stretch themselves on the ground, and lie as if they were dead: they are seen to continue in this posture for a considerable time, without the smallest motion. In the mean while the mother directs her view upwards with an air of fear and confusion; she redoubles her sighs, and repeats the cry that laid all her young prostrate. Those who observe the disorder of this parent, and her

anxious attention, look up into the air to discover the cause, and at last perceive a dark point, which they can hardly distinguish, floating under the clouds. This is a bird of prey, whose distance withdraws him from our view, but who cannot escape either the vigilance or penetration of the careful mother. This occasions her fears, and alarms the whole tribe. One of these creatures has been seen to continue in this agitation, and her young in a manner riveted to the ground, for the space of four hours successively, whilst their formidable foe has taken his circuits, has whirled about, and hovered immediately over their heads. When he at length disappears, the mother changes her note, and utters another cry that revives all her brood; and they all flock round her with expressions of pleasure, as if conscious of their happy escape from danger.

The body of a bird is neither extremely massive, nor equally substantial in all its parts; but it is well disposed for flight, sharp before, and gradually increasing in bulk till it has acquired its just dimensions. Such a structure renders it more adapted to cut the air, and make itself a passage through that element. To qualify it for long flights, in which provisions are not always to be obtained; and to enable it to pass away the tedious winter nights without eating, nature has supplied it under the throat with a bag called the crop, in which it reserves its meat. The fluid in which this swims facilitates its first digestion. The gizzard, into which only a very small quantity of the nourishment enters at a time,

performs the rest; frequently by the aid of little rugged stones, which the bird swallows in order to break the texture of the nutriment the better, and perhaps to keep the passages clear. Some curious experiments, to prove the strength as well as the digestive powers of their stomachs, are to be found in the works of the abbé Spallanzani.

The bones of birds, though of a solidity sufficient to sustain their bodies, are nevertheless so hollow and diminutive, that they scarce make any addition to the weight of their flesh.

That which constitutes the pride and beauty of a bird, its plumage, is artfully formed and distributed, as well to sustain as to defend it from the injuries of the air. The quill of the feather is both firm and light; and being at the same time hollow, it possesses a great deal of surface with little gravity, which places the bird almost in equilibrium with the air. The feathers are inverted behind, and laid one over another in a regular order. That part of them which is next the body is furnished with a warm and soft down; and that next the air is arrayed with a double beard, in two ranks, and longer at one end than at the other. These beards are a row of little flat and thin plates or laminæ, disposed and inserted in a line, as perfect as if their extremities had been cut with a pair of scissars. Each of these laminæ is itself a quill or basis, which sustains two new ranks of a minuteness that almost renders them invisible, and which exactly closes up all the little intervals through which the air might

be insinuated. The feathers are likewise disposed in such a manner that the range of the little beards of the one, slides, plays, and discovers itself more or less under the great beards of the other feather that lies over it. A new rank of lesser feathers serves as a covering to the quills of the larger, so that the air is excluded from every part.

But as this œconomy, so admirable in its appointment, might be frequently incommoded by rains; the author of nature has furnished birds with an expedient that renders their feathers as impenetrable to the water, as they are by their structure to the air. All birds are provided with two little glands, shaped like a nipple, and situated at the extremity of their body. This nipple has several little apertures; and when the bird finds her feathers dry, soiled, discontinued by gaps, or ready to be moistened, she presses this nipple with her bill, and forces out an oily or unctuous matter, with which these glands are filled; and then drawing her bill over the greatest part of her feathers successively, oils and dresses them, gives them a lustre, and fills up all the vacancies with this secreted oil; after which the water only slides over the bird, and finds all the avenues to her body perfectly closed. Our poultry, who live under a covert, have a less quantity of this matter than birds who inhabit the open air; for which reason a hen, when she is wet, makes a ridiculous figure: on the contrary, swans, geese, ducks, moorhens, and all birds destined to live on the water, have their feathers dressed with oil from their very

birth. Their magazine contains a provision of this fluid, adequate to the necessity of its consumption, which is continually returning; their very flesh contracts the flavour of it; and every one may observe that the care of oiling their feathers is their constant employment.

The wings and the tail are both very admirably constructed to answer the necessary purposes of the bird. For the wings form on each side two levers, that keep the body in a just poise; at the same time they perform the office of oars; while the tail acts as a counterpoise to the head and neck, and serves the bird instead of a rudder, whilst he rows with his wings: but this rudder is not only instrumental in preserving the equilibrium of the flight; it likewise enables the bird to rise, descend, and turn where he pleases; for, as soon as the tail is directed to one point, the head turns to the opposite quarter.

We have now completed the general description of the bird, and shall conclude this introduction with an interesting account which the author of the Arctic Zoology has collected, of the manner in which bird-catching is carried on by the inhabitants of the Orkneys, who subsist, during the season, on the eggs of the birds which nestle in the cliffs.

"The method of taking them is so very hazardours, as to satisfy one of the extremity to which the poor people are driven for want of food. Copinsha, Hunda, Hoy, Fowla, and Noss-head, are the most celebrated rocks; and the neighbouring natives the most expert climbers and adventurers after the game

of the precipice. The height of some is above forty fathoms; their faces roughened with shelves or ledges, sufficient only for the birds to rest and lay their eggs. To these the dauntless fowlers will ascend, pass intrepidly from one to the other, collect the eggs and birds, and descend with the same indifference. In most places the attempt is made from above; they are lowered from the slope contiguous to the brink by a rope, sometimes made of straw, sometimes of the bristles of the hog; they prefer the last even to ropes of hemp, as it is not liable to be cut by the sharpness of the rocks; the former is apt to untwist. They trust themselves to a single assistant, who lets his companion down, and holds the rope, depending on his strength alone, which often fails, and the adventurer is sure to be dashed to pieces or drowned in the subjacent sea. The rope is often shifted from place to place with the impending weight of the fowler and his booty. The person above receives signals for the purpose, his associate being far out of sight; who, during the operation, by the help of a staff, springs from the face of the rocks, to avoid injury from the projecting parts.

"In Fowla, they will trust to a small stake driven into the ground, or to a small dagger which the natives usually carry about them, and which they will stick into the ground, and twisting round it a fishing cord, descend by that to climbing places, and after finishing their business swarm up it without fear. Few who make a practice of this come to

a natural death. They have a common saying, "Such a one's *gutcher* went over the *sneak*, and my father went over the *sneak* too." It is a pity that the old Norwegian law was not here in force. It considered this kind of death as a species of suicide. The next of kin, in case the body could be seen, was directed to go the same way; if he refused, the corpse was not to be admitted into holy ground.

"But the most singular species of fowling is in the holm of Noss, a vast rock separated from the isle of Noss by some unknown convulsion, and only about sixteen fathoms distant. It is of the same stupendous height as the opposite precipice, i. e. 480 feet, with a raging sea between, so that the intervening chasm is of matchless horror. Some adventurous climber has reached the rock in a boat, gained the height, and fastened several stakes on the small portion of earth which is to be found on the top; correspondent stakes are placed on the correspondent cliffs. A rope is fixed to the stakes on both sides, along which a machine called a cradle is contrived to slide; and by the help of a small parallel cord fastened in like manner the adventurer wafts himself over, and returns with his booty, which is the eggs and the young of the black-backed gull and the herring gull."

RAPACIOUS BIRDS.

VULTURE.

GENERIC CHARACTER.

Bill straight, hooked at the end, and covered at the base with a thin skin.

Fore part of the head naked.

Legs, feet, and claws, very strong, the latter rather blunt, and a little hooked at the ends.

CONDUR.

SPECIFIC CHARACTER.

VULTUR GRYPHUS. V. maximus, caruncula verticali, longitudine capitis, gula nuda. *Linn. Syst. Nat. Gmel.* 1. p. 245.

GREAT VULTURE. Having a warty excrescence on the crown of the head, and a naked throat.

CONDUR. . . . *Buff. Birds,* 1. p. 139. *Lath. Synop.* 1. p. 4.

IT is supposed that the author of the Arabian Nights took his idea of the roc from this bird; since it is not only the largest of the vulture genus, but

of all those which are able to fly. Its amazing size has given rise to some incredible accounts of its strength; and when we hear that, "singly and unassisted, it seizes an elephant, hurries the ponderous animal into the air, drops it, and kills it by the fall," we cannot help smiling at the uncommon credulity of Marco Paolo. Setting aside all exaggerated accounts, of which this is not the only one, we shall proceed to describe the condur as we find it in the first volume of Hawkesworth's Voyages. This bird was shot at Port Desire, off Penguin island: the head resembled that of an eagle, except that it had a large comb upon it; round the neck it had a white ruff, exactly resembling a lady's tippet; the feathers on the back as black as jet, and as bright as the finest polish could render that mineral; the legs were remarkably strong and large, and the talons like those of an eagle, except that they were not so sharp; and the wings, when they were extended, measured from point to point no less than twelve feet. The thick plumage of this formidable creature is so difficult to penetrate, that father Feuillée found the contents of a musket insufficient to bring one of them down. This naturalist discovered one that was perched upon a great rock in the valley of Ylo, in Peru. "I approached it," says the father, "within musket-shot, and fired; but as my piece was only loaded with swan shot, the lead could not pierce its feathers. I perceived, however, from its motions, that it was wounded; for it rose heavily, and could with difficulty reach another

great rock five hundred paces distant from the sea-shore. I therefore charged my piece with a bullet, and hit the bird under the throat. I then saw that I had succeeded, and I ran to secure the victim; but it struggled obstinately with death, and resting upon its back, it repelled my attempts with its extended talons. I was at a loss on what side to lay hold of it; and I believe if it had not been mortally wounded I should have found great difficulty in securing it. At last I dragged it down from the top of the rock, and with the assistance of a sailor I carried it to my tent to figure it and make a coloured drawing."

From the size of the specimen in the Leverian Museum, and its very muscular appearance, we can readily believe the account of Don Antonio de Ulloa, who observed a flock of sheep in great confusion on a hill adjoining to the place where he was stationed. This was occasioned by a condur which he saw flying upwards with a lamb between its talons, which it dropped before it had ascended to a great height, but immediately followed its prey, and again took it up; it, however, let it fall a second time without daring to descend again, on account of the Indians, who, alarmed at the cries of the boys and barking of the dogs, were running towards the place.

Condamine says, he has seen it hovering over a flock of sheep, and was only prevented from attacking them by the presence of the shepherds. The condurs reside among the mountains, where they procure their subsistence, except in the rainy season,

when they resort to the sea-side, and pick up the large fish which are sometimes thrown ashore in a storm. They appear on the beach about evening, where they pass the night, and return to their proper haunts in the morning. In this situation one of these birds was found not far from the island Mocha, in the South Seas, in the year 1691. The seamen shot it on a cliff by the sea-side, and, taking it for a kind of turkey, they, according to their usual custom, made a meal of it. We find by their account, that the colour was black and white like a magpie, and the crest, or comb, sharp like a razor.

We have but little more to add respecting this bird, as its habits have not been very well ascertained. It is said to make its nest among the most inaccessible rocks, and that the female lays two white eggs, of a larger size than a turkey's.

CARRION VULTURE.

SPECIFIC CHARACTER.

VULTUR AURA.	V. fusco-griseus, remigibus nigris, rostro albo. *Linn. Syst. Nat. Gmel.* 1. p. 246.
	Of a brown gray colour; wing-feathers black; beak white.
	URUBU. *Will. Orn.* 68.
	VULTUR BRASILIENSIS. *Briss. Av.* 1. p. 468.
	TURKEY BUZZARD. *Catesb. Car.* 1. p. 6. pl. 6.
CARRION VULTURE.	*Buff. Birds,* 1. p. 130. *Arct. Zool.* 2. p. 191. *Lath. Syn.* 1. p. 9. n. 5.

THE preference which these birds are known to give to tainted flesh makes them of signal service in tropical climates, where, if the putrid remains of animal substances were not removed, they would soon become intolerable, and render those parts still more unwholesome than they are. Dr. Latham kept two carrion vultures, from Jamaica, for some time; and he tells us that they would, indeed, eat any raw flesh; but when any tainted food was offered them, they expressed their pleasure by fluttering with expanded wings without ceasing, and devour-

ing twice the quantity, as at other times, with more appearance of appetite.

This species is about the size of a turkey, but varies in this respect in different parts: the head is covered with a naked wrinkled red skin, and is warted on the side. The whole of the plumage is dusky, dashed with purple and green: the legs are of a dirty flesh-colour, and the claws black.

These birds are common in the hotter parts of America, and particularly about Carthagena, where they were seen by Ulloa, sitting in numbers on the roofs of the houses, or walking sluggishly about the streets. They generally keep in large flocks, and perch at night on rocks or trees, sitting with their wings spread, in order, it is supposed, to purify their bodies, which are most offensively fetid. In the morning they leave their gloomy retreats, and resort to the neighbourhood of the towns, where they may be seen soaring in the air at an amazing height, in expectation of a putrid banquet, which, if beyond the reach of their acute sight, seldom escapes their sagacious nostrils. When they smell a carcase they collect from all quarters to enjoy the prey, and after wheeling about several times in the air they gradually descend and proceed to their repast. Kolben informs us, that he has often seen the skeletons of cows, oxen, and wild beasts, which they had devoured. The birds detach the flesh from the bones and skin with such dexterity, that what is left is a perfect skeleton, covered with the skin, without the least derangement of the parts.

This curious operation, which prevents your perceiving that the carcase is hollow till you come close to it, is performed by first opening the belly of the animal, and tearing out the entrails, which some begin to devour, while others enter the hollow and separate the flesh. They are exceedingly voracious, and when pressed by hunger will in flocks attack a beast, if they can find a sore upon his back. When once they have determined upon their prey, all the efforts of the unfortunate animal to escape will be unavailing; they descend upon him with fury; and notwithstanding all his attempts to free himself from his devourers, the vultures never quit their hold till they have completed his dectruction. When an eagle presides at the banquet, the vultures are not allowed to touch a morsel till he has satisfied his appetite.

It is observed, that vultures in general decrease in numbers in proportion to the coldness of the climate, till we lose them entirely after passing the Grison Alps, nor do we believe they have ever been found in a much higher latitude; even the temperature of England seems too much for them, since the vultures in the possession of Dr. Latham were alert and brisk during the summer months, and used to run wild about the garden, but were so impatient of the least degree of cold, that a rainy day has frequently obliged them to seek for shelter. The wisdom and goodness of Providence, in confining these filthy birds to climates where their vo-

racious appetite is of such singular service to the inhabitants, must be obvious to every one. But their use is not limited to the removal of the dead and putrid carcases; they have another claim upon the gratitude of mankind, for lessening the number of those destructive animals the alligators, which would otherwise become intolerable by their multitudes. Mr. Pennant observes, that during the season in which the alligators lay their eggs in the sand, the vultures will sit hidden in the leaves of the trees, watching the coming of the female alligator to deposit its eggs, who then covers them with sand, to secure them, as she supposes, from all danger; but no sooner does she retire into the water, than the birds dart on the spot, and with claws, wings, and beak, tear away the sand and devour the whole contents of the repository.

The resemblance which these animals bear to the turkey was the cause of great disappointment to one of the officers who went round the world with Woodes Rogers. In the island of Lobos, large flocks of vultures were seen; and this gentleman, deceived by their appearance, and eager to enjoy the expected feast, would not even wait till the boat could put him on shore, but leaped overboard with his gun in his hand, and, having reached the island, fired among the thickest of them and killed several. But how completely was he disappointed, when he reached the spot, to find all his fancied turkeys changed to stinking vultures!

The bodies of these birds retain a stench which nothing can remove. It is in vain that when killed the rump has been cut off, the body washed, and spices used to overpower its prevailing odour; it still smells and tastes of the carrion by which it was nourished, and sends forth a stench that is unsupportable.

FALCON.

GENERIC CHARACTER.

Bill strong and hooked at the end; the base covered with a naked skin.

Tongue frequently cleft.

First joint of the middle toe connected to that of the outmost by a membrane.

EAGLE.

SPECIFIC CHARACTER.

FALCO CHRYSAETOS. F. cera lutea, pedibusque lanatis luteo-ferrugineis, corpore fusco-ferrugineovario, cauda nigra basi cinereo-undulata. *Linn. Syst. Nat. Gmel.* 1. p. 256.

Cere yellow, legs downy and of a rusty yellow colour, body of a rusty brown, tail dark brown, clouded with ash colour at the base.

GOLDEN EAGLE. . *Buff. Birds,* v. 1. p. 46. pl. 1. *Penn. Brit. Zool.* 1. p. 161. pl. 16. *Will. Orn.* p. 58. t. 1. *Lath. Syn.* p. 31. No. 5. *Bew. Birds,* p. 5.

THE Abbé la Pluche was travelling in company with a very curious nobleman, who had an inclination to

GOLDEN EAGLE.

Designed by W. Daniell.

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see the antiquities of Nismes before he came to Marseilles. They took their route through St. Flour, in order to proceed from thence to Mende, in the Gevaudan, and cross the Cevennes. As this nobleman was charged with a commission from court, he was every where received with particular marks of distinction. An officer of note in the neighbourhood of Mende invited him to pass a few days at his seat, and entertained him in the politest manner he was able. The abbé was included in the invitation, and observed with some surprise, when the dinner was served up, that all the wild fowl brought to the table wanted either a head, a wing, a leg, or some other part; which occasioned the gentleman to say very agreeably, that they must pardon the voraciousness of his caterer, who always tasted what he had prepared before it came to the table. When they asked him who this caterer might be, and he perceived they grew facetious at this new mode of entertainment, he expressed himself in the following manner: In these mountainous parts, which are the richest in the kingdom, on account of their fertility, the eagles are accustomed to build their aeries in the cavities of some almost inaccessible rock, which is hardly to be ascended by the aid of ladders and grappling-irons. As soon as the shepherds have discovered their retreat, they raise a little hut at the foot of the rock, where they screen themselves from the fury of these dangerous birds when they convey provision to their young. The male carefully nourishes them

for the space of three months, and the female is engaged in the same employment, till the bird is capable of quitting the aerie; but when that period is completed, they make him spring into the air, and bear him up with their wings and talons when he is in danger of falling. Whilst the young eagle continues in the aerie, the parents ravage all the neighbouring country; capons, chickens, ducks, lambs, kids, and pigs, suffer on this occasion; they seize whatever falls in their way, and bear it to their young. But the fields and woods supply them with their best game; for there they destroy pheasants, partridges, woodcocks, wild ducks, hares, and young fawns. The shepherds, at the very instant they perceive the old birds have left their aerie, plant their ladders and climb the rocks as well as they are able, and then carry off what the eagles have conveyed to their offspring, and in the room of what they take leave the entrails of certain animals. But as this cannot be done so expeditiously as to prevent the young eagle from devouring part of their food, the shepherds must necessarily bring away what has been already mutilated; but in recompense for this disadvantage, what they thus take has a much finer flavour than any thing the markets afford. The gentleman added, that when the young eagle has strength enough to fly, which requires a considerable time to attain, because he is deprived of an excellent food and obliged to take up with what is very indifferent, the shepherds fasten him to the aerie, that the parent birds may continue to supply him

with what they take, till the disagreeable task of providing for an offspring that perpetually fatigues them, obliges first the male, and then the female, to forsake him. The male transfers himself to a new situation, and the female follows the track of her faithful mate; after which, their tenderness for another progeny makes them forget the former, whom the shepherds leave in the aerie to starve, unless they are compassionate enough to remove him.

This is a fact they were assured of by the gentleman, who acquainted them that three or four of these aeries were sufficient to furnish a splendid table throughout the year; and instead of murmuring at the Creator of eagles and vultures, he thought himself very happy in their neighbourhood, and reckoned every aerie of an eagle or vulture on his estate, equivalent to an annual rent.

This formidable bird is sometimes found in Great Britain, but more frequently in the mountainous parts of Ireland, where it breeds in the loftiest cliffs, and lays three or four eggs, of which seldom more than two are prolific. A full-sized golden eagle weighs about twelve pounds; his length is three feet, and the extent of his wings between seven and eight feet; his deep-blue bill, about three inches long, is ornamented with a yellow cere. The whole body is of a dark rusty brown colour, and the feathers on the back are finely clouded with a deeper shade of the same. The legs are yellow, short, and very strong, being three inches in circumference, and feathered to the very toes; these are covered with

large scales, and armed with most formidable claws, the middle one on each foot being full two inches long.

The sight and sense of smelling in the eagle is very acute; his eyes are defended from too great a glare of light by a nictitating or winking membrane, which he can draw over them like a curtain at pleasure. This membrane is neither entirely opake nor pellucid, but is somewhat transparent, and it is constantly drawn over the eyes of the bird when he is said to gaze at the sun.

The eagle is as much superior to the rest of the birds of the air, as the lion is to the other beasts of the field, and both are the acknowledged sovereigns of their respective situations. The eyes of the eagle have a glare like those of the lion, and resemble them in colour; the claws are nearly of the same shape; and his voice is equally powerful, if we allow for the difference of size. "Destined both of them for war and plunder," says Buffon, "they are equally fierce, equally bold, and intractable. It is impossible to tame them, unless they are caught when in their infancy. It requires much patience and art to train a young eagle for the chase; and after he has attained to age and strength, his caprices and momentary impulses of passion are sufficient to create suspicions and fears in his master. Authors inform us, that the eagle was antiently used in the east for falconry; but this practice is now laid aside. He is too heavy to be carried on the hand without great fatigue, nor is he ever brought to be so tame

or so gentle, as to remove all suspicions of danger. His body is robust; his legs and wings strong; his flesh hard; his bones firm; his feathers stiff; his attitude bold and erect; his movements quick; his flight rapid. He rises higher than any of the winged race; and hence he was termed by the antients the celestial bird, and regarded in their auguries as the messenger of Jove. By means of his exquisite sight he can distinguish objects at an immense distance; and when he has seized his prey he checks his flight, and places it upon the ground to examine its weight before he carries it off. "Though his wings be vigorous," continues Buffon, "yet his legs being stiff it is with difficulty that he can rise, especially if he is loaded. He bears away geese and cranes with ease; he also carries off hares, young lambs, and kids. When he attacks fawns or calves, he instantly gluts himself with their blood and flesh, and afterwards transports their mangled carcasses to his aerie, or nest, which is quite flat, and not hollow like that of other birds. He commonly places it between two rocks, in a dry inaccessible place. The same nest, it is said, serves the eagle for the whole course of its life. It is, indeed, a laborious work, and solid enough to last for a considerable time. It is constructed nearly like a floor, with small sticks five or six inches long, supported at the extremities, and crossed with pliant branches, covered with several layers of rushes and heath; the nest is several feet broad, and so firm as not only to receive the eagle, the female, and the young, but

to bear the weight of a large quantity of provisions. It is not covered above, but is sheltered by the projection of the upper part of the rock: in the middle of this structure the female deposits her eggs, which seldom exceed two or three, and covers them, it is said, for thirty days; but some of these are commonly addle, and it is seldom that three young eagles are found in a single nest. It is even pretended, that after they have acquired some strength the mother destroys the weakest or the most voracious of her infant brood. Excessive scarcity of provisions alone can occasion this unnatural treatment. The parents, not possessing a sufficiency for their own support, endeavour to reduce the members of the family; and when the young are able to fly, and in some degree to provide for themselves, they expel them from their natal abode, and never suffer them to return.

The strength of the eagle must be very great to enable him to rise into the air with the heavy prey which he occasionally carries to his young ones. The curious account of the nest of an eagle, described by Willughby, must not be omitted. "In the year of our Lord 1668, in the woodlands near the river Derwent, in the peak of Derbyshire, was found an eagle's nest, made of great sticks, resting one end on the edge of a rock, the other on two birch trees, upon which was a layer of rushes, and over them a layer of heath, and upon the heath rushes again; upon which lay one young one and an addle egg, and by them a lamb, a hare, and

three heath poults. The nest was about two yards square, and had no hollow in it."

Robbing the nest of an eagle is sometimes a dangerous employment. It is recorded, that a peasant in Ireland resolved to rob the nest of an eagle that had built in a small island in the beautiful lake of Killarney. He accordingly stripped, and, having reached the island while the old ones were away, robbed the nest of its young, and was preparing to swim back, with the eaglets tied in a string; but, while he was yet up to his chin in the water, the old eagles returned, and, missing their young, quickly fell upon the plunderer, and in spite of all his resistance dispatched him with their beaks and talons.

Although the general characteristics of the different eagles are nearly the same, yet some of their habitudes are different. The *sea eagle*, for example, lives near the element from which he derives his name, and feeds chiefly upon fish, which he takes as they are swimming near the surface, by darting himself down on them. This bird frequents several parts of Great Britain, and was well known in Turner's time for the great destruction it made among the fish. It seems the fishermen were then fond of anointing their baits with the fat of this eagle, imagining that it had a peculiar alluring quality; they were even superstitious enough to believe that whenever the sea eagle hovered over a piece of water, the fish, as if charmed, would rise to the surface with their bellies upwards. These birds are

very common in the northern parts of America, where they endure the severest winter, and prey upon young seals, which they seize floating and carry out of the water. They abound below the falls of Niagara, where they frequently make a rich repast upon the carcases of bears and other animals, which are so frequently carried away by the stream, and precipitated down while attempting to cross the river above this tremendous cataract.

Du Pratz mentions a scarce species of eagle found in America, which is entirely white, except the tips of the wings, which are black. The wing feathers of this bird bear a high price among the natives of Louisiana, who use them to adorn the calumet, or pipe of peace. This instrument is decorated by different nations with the feathers of different birds, and for this purpose they always choose the most beautiful. We learn from Mr. Pennant, that the calumet is of the first importance among the Americans. It is nothing more than a pipe, whose bowl, says Du Pratz, is generally made of a soft red marble; the tube of a very long reed, ornamented with the wings and feathers of birds. No affair of consequence is transacted without the calumet. It ever appears in meetings of commerce, or exchanges; in congresses for determining of peace or war; and even in the very fury of a battle. The acceptance of the calumet is a mark of concurrence with the terms proposed, as the refusal is a certain mark of rejection. Even in the rage of a conflict this pipe is sometimes offer-

ed; and, if accepted, the weapons of destruction instantly drop from their hands, and a truce ensues. It seems the sacrament of the Savages, for no compact is ever violated; which is confirmed by a whiff from this holy reed. The Dance of the Calumet is a solemn rite which always confirms a peace or precedes a war. It is divided into three parts: the first appears an act of devotion, danced in measured time; the second is a true representation of the Pyrrhic dance; the third is attended with songs expressive of the victories they had obtained, the nations they had conquered, and the captives they had made.

An immense bird, which is called the *bearded eagle*, from the tuft of very narrow feathers like hairs which hangs beneath the throat, forms his nest in the highest parts of the Alps, where he dwells without the reach of man, and preys securely on the wild hares, kids, marmots, and chamois, which inhabit those almost inaccessible mountains. One of these terrible birds is said to have been caught in the canton of Glarus, which measured from the tip of the beak to the extremity of the tail nearly seven feet, and eight feet and a half from tip to tip of its wings. The account which Gesner gives, on the authority of Fabricius, of the bearded eagle, appears to be greatly exaggerated. He tells us that "some peasants between Miessen and Brisa, cities in Germany, losing every day some of their cattle, which they sought for in the forests in vain, observed by chance a very large nest resting on three

oaks, constructed with sticks and branches of trees, and as wide as the body of a cart. They found in this nest three young birds, already so large that their wings extended seven ells; their legs were as thick as those of a lion; and their nails the size of a man's fingers. In the nest were found several skins of calves and sheep."

Mr. Bruce met with this bird in Abyssinia, where it is called by the common people, Abou Duch'n, or father long-beard, probably from the tuft of hair which hangs beneath the throat. That gentleman has given the following particular and entertaining description of this species, which we have taken the liberty to extract from the appendix to his Travels.

"From wing to wing he was eight feet four inches; from the tip of his tail to the point of his beak, when dead, four feet seven inches; he weighed twenty-two pounds, and was very full of flesh. He seemed remarkably short in the legs, being only four inches from the joining of the foot to where the leg joins the thigh, and from the joint of the thigh to the joining of his body six inches. The thickness of his thigh was little less than four inches; it was extremely muscular, and covered with flesh. His middle claw was about two inches and a half long, not very sharp at the point, but extremely strong. From the root of the bill to the point was three inches and a quarter, and one inch and three quarters in breadth at the root. A forked brush of strong hair, divided at the point into two, proceeded from the cavity of his lower jaw, at the beginning

of his throat. He had the smallest eye I ever remember to have seen in a large bird, the aperture being scarcely half an inch. The crown of the head was bare or bald, so was the front where the bill and skull joined.

" This noble bird was not an object of any chase or pursuit, nor stood in need of any stratagem to bring him within our reach. Upon the highest top of the mountain Lamalmon, while my servants were refreshing themselves from that toilsome rugged ascent, and enjoying the pleasure of a most delightful climate, eating their dinner in the outer air, with several large dishes of boiled goat's flesh before them, this enemy, as he turned out to be to them, appeared suddenly ; he did not stoop rapidly from a height, but came flying slowly along the ground, and sat down close to the meat, within the ring the men had made round it. A great shout, or rather cry of distress, called me to the place ; I saw the eagle stand for a minute, as if to recollect himself, while the servants ran for their lances and shields. I walked up as near to him as I had time to do. His attention was fully fixed upon the flesh. I saw him put his foot into the pan, where was a large piece in water, prepared for boiling ; but finding the smart which he had not expected, he withdrew it, and forsook this piece which he held.

" There were two large pieces, a leg and a shoulder, lying upon a wooden platter ; into these he trussed both his claws, and carried them off; but I thought he looked wistfully at the large piece

which remained in the warm water. Away he went slowly along the ground as he had come. The face of the cliff over which criminals are thrown took him from our sight. The Mahometans that drove the asses, who had, as we have already observed in the course of the journey, suffered from the hyæna, were much alarmed, and assured me of his return. My servants, on the other hand, very unwillingly expected him, and thought he had already more than his share.

"As I had myself a desire of more intimate acquaintance with him, I loaded a rifle gun with ball, and sat down close to the platter by the meat. It was not many minutes before he came, and a prodigious shout was raised by my attendants, He is coming! He is coming! enough to have discouraged a less courageous animal. Whether he was not quite so hungry as at the first, or suspected something from my appearance, I know not; but he made a small turn, and sat down about ten yards from me, the pan with the meat being between me and him. As the field was clear before me, and I did not know but his next move might bring him opposite to some of my people, and so that he might actually get the rest of the meat and make off, I shot him with the ball through the middle of his body, about two inches below the wing, so that he lay down upon the grass without a single flutter. Upon laying hold of his monstrous carcase, I was not a little surprised at seeing my hands covered and tinged with yellow powder or dust. Upon

turning him upon his belly, and examining the feathers of his back, they produced a brown dust, the colour of the feathers there. This dust was not in small quantities; for, upon striking his breast, the yellow powder flew about in greater quantity than from a hair-dresser's powder puff. The feathers of the belly and breast, which were of a gold colour, did not appear to have any thing extraordinary in their formation; but the large feathers in the shoulder and wings seemed apparently to be fine tubes, which, upon pressure, scattered this dust upon the finer part of the feather; but this was brown, the colour of the feathers of the back. Upon the side of the wing, the ribs, or hard part of the feather, seemed to be bare, as if worn, or I rather think were renewing themselves, having before failed in their functions.

"What is the reason of this extraordinary provision of nature is not in my power to determine. As it is an unusual one, it is probably meant for a defence against the climate, in favour of those birds which live in those almost inaccessible heights of a country doomed even in its lower parts to several months of excessive rain. The pigeons we saw upon Lamalmon had not this dust in their feathers, nor had the quails; from which I guess these to be strangers, or birds of passage, that had no need of this provision, created for the wants of the indigenous, such as this eagle is, for he is unknown in the low country. That same day I shot a heron, in nothing different from ours, only that he was smaller

who had upon his breast and back a blue powder in full as great quantity as that of the eagle."

Mr. Collins, in his account of New South Wales, mentions a bird which was taken near Broken Bay, of a species never seen before in that country; it was a large eagle, which showed his strength by driving his talons through a man's foot, while lying in the bottom of the boat with his legs tied together. He stood above three feet in height; and during the ten days he was a prisoner was remarkable for refusing to be fed by any but one particular person. Among the natives he was an object of wonder and fear; and our author assures us, that they could never be prevailed upon to go near him. They asserted that he would carry off a middling-sized kanguroo. He had been intended to be sent to England; but one morning was found to have divided the strands of the rope with which he was fastened, and escaped.

The figure of the golden eagle, which accompanies this account, was drawn from a remarkable fine specimen in the Leverian museum. The loss to the world of that noble and extensive collection must for ever be severely felt by all those who, like ourselves, have had occasion to make use of its treasures.

GOSHAWK.

Designed by W. Daniell.

Published by Messrs. Cadell & Davies, London March 1. 1809.

HAWK.

SPECIFIC CHARACTER.

FALCO PALUMBARIUS. F. cera nigra, margine pedibusque flavis, corpore fusco, rectricibus fasciis pallidis, superciliis albis. *Linn. Syst. Nat. Gmel.* 1. p. 269.

Cere black, legs yellow, body brown, tail feathers crossed with pale bands, eyebrows white.

ACCIPITER PALUMBARIUS. *Aldr. Orn.* 1. p. 342. pl. 343.

GOSHAWK. . . . *Buff. Birds,* v. 1. p. 184. pl. 12. *Penn. Brit. Zool.* v. 1. p. 184. pl. 24. *Penn. Arct. Zool.* v. 2. p. 204. no. 99. *Albin. Av.* 2. p. 8. t. 8. *Will. Orn.* p. 85. t. 3. 5. *Bew. Birds,* p. 23.

WHEN falconry was in fashion, the goshawk ranked high for its spirit in the field. It is larger in size, but of a more elegant and slender make, than the common buzzard. The bill is blue with a black tip; the cere of a yellowish green. (Linnæus says black.) On the side of the neck is a bed of broken white; the head and parts above are of a deep brown; the breast and belly white, marked with many transverse black and white bars; the ash-coloured tail is marked with four or five dusky bars.

This is not a common bird in England, but is frequently seen in Scotland, where it is very destructive to game, dashing through the woods after its quarry with great impetuosity. M. Buffon, who had two of these hawks in his possession, says that "the female was at least a third larger than the male, and its wings, when closed, did not reach within six inches of the end of the tail; it was more bulky when full grown than a large capon. The count observed, that though the male was much smaller than the female, it was fiercer and more vicious. They were both difficult to tame, and often fought each other with their claws, turning upon their back and defending themselves with their spread talons. "Though confined in the same cage, they were never perceived to contract the least affection for each other. They continued together a whole summer, from the beginning of May to the end of November, when the female in a violent fit of rage murdered her mate, at nine or ten o'clock in the evening, when the silence of night had soothed the rest of the feathered race in profound repose. Their dispositions are so bloody, that if a goshawk be left with several falcons, it butchers them all one after another. It appears to prefer the common and field mice and small birds, and eagerly devours raw flesh, but constantly declines meat that has been cooked, though by long fasting it can be brought to overcome this natural aversion." This bird discovered a constant uneasiness when any person approached, nor could the cage even be passed where it was kept

without throwing it into violent agitations, and occasioning repeated screams.

Mankind have discovered the secret of making even the voracious quality of birds advantageous, by employing them to hunt down those whose flesh affords the most exquisite relish. For this sport, the falcon, the gerfalcon, the lanner, the sacre, the merlin, the sparrow-hawk, and the goshawk were much esteemed. But the falcon and the hawk were more frequently used than any of the rest. The falcon was in such high repute, that the species which inhabits Iceland was reserved exclusively for the king of Denmark, who sent his falconer with two attendants annually, to purchase them of the inhabitants; a certain number of whom were licensed to catch them. These people came every year about midsummer, to a place appointed to meet the royal falconer, and each brought ten or twelve, capped, and perched on a cross pole, which they carried on horseback, resting the end on the stirrup. The falconer examined each bird, and for those which he approved he gave the seller a written certificate, which entitled him to receive from the king's receiver-general seventeen rix dollars for the purest white falcon, ten for the least white, and seven for the brown species. It is said that this traffic alone brought to the island between two and three thousand rix dollars annually.

Mr. Pennant has collected from Horrebow the manner in which they are taken. Two posts are fastened in the ground, not remote from their haunts.

To one is tied a ptarmigan, a pigeon, a cock, or a hen, fastened to a cord that it may have means of fluttering, and so attract the attention of the falcon. On the other post is placed a net, distended on a hoop, about six feet in diameter. Through this post is introduced a string, above a hundred yards long, which is fastened to the net, in order to pull it down; and another is fastened to the upper part of the hoop, and goes through the post to which the bait is tied. As soon as the falcon sees the fowl flutter on the ground, he takes a few circles in the air, to see if there is any danger, then darts on his prey in such a violent manner as to strike off the head as nicely as if it was done with a razor. He then usually rises again, and takes another circle, to explore the place a second time; after which he makes another stoop; when, at the instant of descending, the man pulls the dead bird under the net, and, by means of the other cord, covers the falcon at the moment it has seized the prey. The person during this time remains concealed behind some stones, or else lies flat on his belly, to elude the sight of the falcon.

As soon as one is caught it is taken gently out of the net, for fear of breaking any of the feathers of the wings or tail, and a cap is placed over its eyes. If any of the tail feathers are injured, the falconers have the art of grafting others; which, it is said, has sometimes occasioned a needless multiplication of species.

The extraordinary reputation of the Iceland fal-

con confined it to kings, princes, and the higher order of nobility, while the hawk fell to the share of those of an inferior rank. At the time when hawking was the favourite diversion, great care was taken to train the birds properly for the sport; and as the manner in which it was done may not be uninteresting to those who feel a regard for our antient customs, we shall proceed to give some account of it.

The hawks which were brought up for this exercise were either nias or hagard birds. Those were called nias which had been taken in the nest; the hagards were those which had enjoyed their liberty before they were caught. These last were tamed with more difficulty; but patience and dexterity succeeded in that particular, and, in terms of falconry, made them tractable and fit for the fray. When they were too wild, they were neither fed nor suffered to sleep for three or four days and as many nights, and were never left alone; by which means they grew familiar with the falconer, and became obedient to all his commands. His principal care was to accustom them to settle on his fist; to spring when he threw them off; to know his voice, his singing, or any other signal he gave them; and to return when ordered to the fist. At first they were tied with a string, of about thirty fathoms in length, to prevent them from flying away when they were reclaimed; and they were not freed from this confinement till they were completely disciplined and always returned at command. To

accomplish this, the bird was lured. The lure is a term used in falconry for a piece of red stuff or wood, on which were fixed the bill, talons, and wings of the particular bird they meant the hawk to pursue; such as a heron, a pigeon, or a quail; and on this lure the food they intended to give him was always fixed, as an inducement for him to return when recalled. The sight of his beloved food, with the addition of a certain noise, immediately brought him back; and this was continued for a few times, after which the voice alone was sufficient.

After three weeks' or a month's exercise in a garden, or other enclosed place, the bird was carried into the open fields, and little bells fastened to his feet, that the falconer might be more readily informed of his motions. He was always capped; that is to say, his head was covered with leather, which fell down over his eyes, and prevented him from seeing any object, but the one it was intended he should pursue: as soon as the dogs sprung the game they were in quest of, the falconer uncapped the bird, and tossed him into the air after his prey. This was a gratifying moment to the sportsmen, who saw him wing his flight, and raise himself aloft, till he diminished by degrees from their sight, and was no longer visible. Here his keen eye enabled him to contemplate the motions of his prey, whom the distance of its enemy deluded into an imaginary security, till at last he lanches upon it with the rapidity of an arrow, and bears it to his anxious

master, who recalls him. They never failed to reward his first essays with the neck and entrails of the captured prey. These gratuities, added to the caresses of the falconer, animated the bird to do his duty, and particularly prevented him from bearing away his bells; or flying off, so as to return no more.

The hawk shows the most sport when flown at a kite or heron; for, instead of flying directly forwards like other birds, these, when threatened by their enemy, rise as nearly perpendicularly as possible, their pursuer at the same time trying to rise above them, till both gradually retire from the sight of the spectators, and are at length lost in the clouds. This, however, is only for a short time; they are presently seen descending, and struggling together with all their might; one using every art to overcome its prey, the other making every effort to escape from its enemy. The conflict is soon over; the victorious hawk returns to his master, and is rewarded with a share of the spoil.

Falcons were sometimes trained to the barbarous custom of what was called *flying at the fur*. When the falcon was very tame, they took a live hare, and broke one of his legs, or else they made use of a hare's skin stuffed with straw, with a piece of chicken's flesh, or whatever food the falcon was most fond of, fixed to it. This skin was fastened to the girth of a horse by a long string; and as it was dragged along, the bird, deluded by the sight, and supposing it to be a hare, darted upon it; and by

this means frequently repeated, he was taught to distinguish that animal.

They have even been taught to fly at the larger wild animals. Gamelli Carreri mentions a person who accustomed his young falcons betimes to eat what was prepared for them, out of the sockets of the eyes of a wolf, a boar, or some other wild beast; for which purpose, he preserved the head and skin of the first animal he could kill, and stuffed it in such a manner that the creature seemed to be alive, and the falcons had nothing to eat but what they picked out of the cavity of the eyes: after a certain time, he began to move this figure gradually while the falcon was feeding; and at length the bird learns to fasten upon it, though the beast is drawn backwards and forwards with a very quick motion. The certainty of losing his meal were he to quit his hold, made him attentive to fix himself well on the skull, that he might dig his bill into the eye, notwithstanding the motion. When these first exercises were over, the gentleman placed the carcass on a cart, drawn by a horse in full speed, and followed by the falcon, who continued feeding during the whole time. Thus tutored, when they came to fly him in the field, he never failed to dart on the first beast he discovered, and immediately fastened on his head in order to scoop out his eyes. This throws the creature into agonies; and whilst he is engaged with the bird, the hunters have time to approach and kill him without danger.

The diversion of hawking can be traced back in

England to the time of king Ethelbert, who died in the year 760. He wrote into Germany for a brace of falcons, which would fly at cranes and bring them to the ground. This application makes it evident that the sport was pursued in Germany at that time; from whence it in all probability got footing in England, and became afterwards such a favourite pastime, that "it was thought sufficient for noblemen's sons to winde their horn and to carry their hawk fair, and leave study and learning to the children of mean people." Even sanguinary laws were enacted in the reign of Edward III., who made the stealing of a hawk a capital punishment, and imprisoned those a year and a day, who were detected in taking the eggs, besides a penalty which they were obliged to pay if his majesty thought fit. These laws were mitigated in the days of Elizabeth, when three months imprisonment excused the offender, if he could find security for his good behaviour during seven years; if not, he was even obliged to remain in jail. In the reign of James the First, the diversion was in such repute that sir Thomas Monson is said to have given a thousand pounds for a cast of hawks; a prodigious sum in those days, and beyond all reason, when we consider that sir Anthony Pell, the master falconer and keeper of his majesty's hawks at that time, issued a warrant dated January A. D. 1621, to prevent the removal of those birds from the custom-house, which were brought to the port of London, till after he or his servants made choice of such as were fit for the

king; and the prices paid for them, in the words of the warrant, were as follows, viz. "for a faulcon twenty six shillings and eight pence, for a tassel gentle thirteene shillings and four pence, for a lanner twentie six shillings and eight pence, for a lannerett thirteene shillings and four pence, for a goshawke twentie shillings, for a tassel of a goshawke thirteene shillings and four pence, for a gerfaulkon thirtie shillings, for a jerkin thirteene shillings and four pence."

We shall dismiss this genus of birds with an anecdote of the common buzzard; who, from his sluggish and inactive disposition, is more readily tamed than the spirited goshawk. "In 1763," says M. Fontaine in a letter to the count de Buffon, "a buzzard was brought to me that had been taken in a snare. It was at first extremely wild and unpromising. I undertook to tame it; and I succeeded, by leaving it to fast, and constraining it to come and eat out of my hand. By pursuing this plan, I brought it to be very familiar; and after having shut it up about six weeks, I began to allow it a little liberty, taking the precaution, however, to tie both pinions of its wings. In this condition it walked out into my garden, and returned when I called it to feed. After some time, when I judged that I could trust to its fidelity, I removed the ligatures, and fastened a small bell, an inch and a half in diameter, above its talon, and also attached on the breast a bit of copper having my name engraved on it. I gave it entire liberty, which it soon abused;

for it took wing and flew as far as the forest of Belesme. I gave it up for lost; but four hours after, I saw it rush into my hall, which was open, pursued by five other buzzards, who had constrained it to seek again its asylum.

" After this adventure, it ever preserved its fidelity to me, coming every night to sleep on my window; it grew so familiar as to seem to take singular pleasure in my company. It attended constantly at dinner, sat on a corner of the table, and very often caressed me with its head and bill, emitting a weak sharp cry, which, however, it sometimes softened. It is true that I alone had this privilege. It one day followed me when I was on horseback, more than two leagues, flying above my head.

" It had an aversion both to dogs and cats; nor was it in the least afraid of them: it had often tough battles with them, but always came off victorious. I had four very strong cats, which I collected into my garden with my buzzard; I threw to them a bit of raw flesh; the nimblest cat seized it, the rest pursued; but the bird darted upon her body, bit her ears with his bill, and squeezed her sides with his talons so forcibly, that the cat was obliged to relinquish her prize. Often another cat snatched it the instant it dropped; but she suffered the same treatment, till the buzzard got entire possession of the plunder. He was so dexterous in his defence, that, when he perceived himself assailed at once by the four cats, he took wing, and uttered a cry of exultation.

At last, the cats, chagrined with their repeated disappointment, would no longer contend.

"This buzzard had a singular antipathy: he would not suffer a red cap on the head of any of the peasants; and so alert was he in whipping it off, that they found their heads bare without knowing what was become of their caps. He also snatched wigs, without doing any injury; and he carried these caps and wigs to the tallest tree in a neighbouring park, which was the ordinary deposit of his booty.

"He would suffer no other bird of prey to enter his domain; he attacked them very boldly, and put them to flight. He did no mischief in my court-yard; and the poultry, which at first dreaded him, grew insensibly reconciled to him. The chickens and ducklings received not the least harsh usage; and yet he bathed among the latter. But, what is singular, he was not gentle to my neighbours' poultry; and I was often obliged to publish that I would pay for the damage he might occasion. However, he was frequently fired at, and at different times received fifteen musket shots without suffering any fracture. But once, early in the morning, hovering over the skirts of a forest, he dared to attack a fox, and the keeper, seeing him on the shoulders of the fox, fired two shots at him: the fox was killed, and the buzzard had his wing broken; yet notwithstanding this fracture he escaped from the keeper, and was lost seven days. This man, having discovered

from the noise of the bell that he was my bird, came next morning to inform me. I sent to make search near the spot; but the bird could not be found, nor did it return till seven days after. I had been used to call him every evening with a whistle, which he did not answer for six days; but on the seventh I heard a feeble cry at a distance, which I judged to be that of my buzzard. I repeated the whistle a second time, and heard the same cry. I went to the place from whence the sound came; and at last found my poor buzzard with his wing broken, who had travelled more than half a league on foot to regain his asylum, from which he was then distant about a hundred and twenty paces. Though he was extremely reduced, he gave me many caresses. It was six weeks before he was recruited, and his wounds were healed; after which, he began to fly as before, and follow his old habits for about a year; he then disappeared for ever. I am convinced that he was killed by accident, and that he would not have forsaken me from choice."

OWL.

GENERIC CHARACTER.

Strong hooked bill, naked at the base.
Head large and round.
Tongue cleft.
Feathers round the face disposed in a circular form.
Outmost toe capable of being turned back, and answering the purpose of a hind toe.

SPECIFIC CHARACTER.

STRIX BUBO. . . S. corpore fusco. *Linn. Syst. Nat. Gmel.* 1. p. 286.
Body brown.
Bubo maximus nigri et fusci coloris. *Sib. Scot.* 14.
LE GRAND DUC. *Briss.* 1. 332.
GREAT-EARED OWL. *Buff. Birds,* 1. p. 270. pl. 22. *Lath. Syn.* 1. p. 116. no. 1. EAGLE OWL. *Penn. Brit. Zool.* 1. no. 64. pl. 19. *Will. Orn.* p. 99. t. 12.

THIS is by far the largest owl of the species, and haunts old deserted towers that are situated near mountains; or else fixes its gloomy abode among

GREAT EARED OWL.

Designed by W. Daniell

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the battlements of some ruined castle, or in the deep recess of some excavated rock, from whence it seldom ventures into the plains, but seeks its prey in the neighbourhood of its abode, increasing the natural horrors of the place by its frightful nocturnal shrieks.

The great-eared owl has been shot in Scotland and in Yorkshire; but it is a very scarce bird in England, and by no means common in France. It is said, however, to abound in some parts of Europe and America, particularly about Hudson's Bay, from whence it stretches as far as Kamtschatka, and even proceeds to the northward till it crosses the arctic circle. It is but little inferior in size to the eagle: the head and body are marked with lines and spots of black, brown, and rust colour; the tail is short, and ribbed with dusky bars; the thick legs are covered to the very end of the toes with soft light-brown feathers; the claws are black, strong, and hooked.

Moles, rabbits, rats, and mice, are equally the objects of this creature's pursuit. Of these, the rabbit and the rat are too large to be managed at a mouthful; but the moles and the mice are swal lowed whole, bones, hair, and all. Of this we are assured by Frisch, who had some of these birds alive. "If mice were thrown to them, they crushed the bones with their bill, then swallowed them one after another, sometimes to the number of five." After they have extracted all the nutriment from their food, the indigestible part of it is rejected through the bill in the shape of round pellets,

which are often found in their haunts. They build a nest near three feet in diameter, composed of small branches of dry wood, interwoven with pliant roots and strewed with leaves. One or two eggs, rather bigger than those of the hen, are commonly found in a nest; it is a rare thing to meet with three. When the young make their appearance the parents have enough to do. Food must be provided to satisfy their excessive voracity; and bats, snakes, lizards, toads, and frogs, are swallowed indiscriminately, So vigilant, indeed, are the parents in pursuit of sustenance for their offspring, that they even fight with the buzzards for the sake of their plunder, which, when victorious, they carry away to their nests.

A curious instance is related in the Stockholm Philosophical Transactions, of the care these birds take of their young, even when removed from their presence. M. Cronstedt resided several years on a farm in Sudermania, near a steep mountain, on whose summit two eagle owls had built their nests: one of the young ones, which had wandered away from the nest, was caught by some of the servants, and brought to their master, who shut it in a large hen-coop. The next morning a dead partridge was found lying close to the door of the coop; which M. Cronstedt justly concluded had been brought by the anxious parents, who probably in the night-time heard the cry of their lost young one, and were thus led to the place of its confinement. This was afterwards put beyond a doubt, as the same

mark of attachment was repeated for fourteen nights successively. The game which the old ones carried to it was chiefly young partridges, for the most part newly killed, but sometimes a little spoiled. A moor-fowl was once brought so fresh as to be still warm under the wings. At another time they procured the prisoner a piece of lamb; but as this was in a putrid state, it was supposed they brought it for want of something better. This singular instance of attachment excited the curiosity of M. Cronstedt, who sat up with his servant, several nights, in order to observe, if possible, when this supply was deposited. But these sharp-sighted owls were not to be deceived; they knew they were watched, and no longer paid their nocturnal visits to the hen-coop. This was evident, from the usual food being left the very night they ceased to watch them. The young owl was taken in July, and in the month of August the parents discontinued their attendance, it being the usual time when they abandon their young to their own exertions. From this instance, we may readily suppose that these birds must be very unwelcome visitors in a sporting country, since they destroy such a quantity of game during the time they are employed in rearing their young.

The great-eared owl has been occasionally used by falconers to deceive the kite, when they want to catch that bird and train him for the sport. Upon this occasion they clap the tail of a fox upon the great owl to render his figure extraordinary:

in this ridiculous dress he skims along the surface of the ground, and alights on the plain, while the kite advances to observe his odd appearance, and generally hovers about unguarded, till he is either surprised by the falconer, or caught by a strong-winged hawk provided for the purpose. This owl differs from the rest of the species, in being better able to support the light of day; for he leaves his haunts earlier in the evening, and returns later in the morning.

The whole of the owl tribe make a hideous noise, which is seldom heard while pursuing their prey, but has been considered rather as a call to courtship. However this may be, there is always something terrifying in this call, which is often heard in the silence of midnight, and breaks the general pause with a horrid variation. It differs in all, but in each it is alarming and disagreeable. Father Kircher, who has set the voices of birds to music, has given all the tones of the owl note, which makes a most tremendous melody. The light, which gives life and spirit to other birds, is by these most carefully avoided. They never permit it to be a spectator of their actions; and while the sun continues above the horizon, they conceal themselves in the deepest and most gloomy recesses, where they wait the return of night, that they may steal out of their prisons and pursue their prey. When this pursuit is successful, they soon return to their haunts; but it sometimes happens, when they find but little game, that their appetite gets the better of their

prudence, and they continue searching for food till they are surprised by the morning sun, which breaks upon their sight, and so dazzles and confounds them that they are obliged to avail themselves of the first tree or hedge that offers, to escape from the glare. Here they must remain with patience till the evening once more allows them to see their way. If unfortunately all their precautions to conceal themselves from other birds should be defeated, there is at once a general association against them, and they are sure to receive no mercy. All unite in the general cause; and those who would fly from this unfortunate bird with the greatest terror in the season when he could defend himself, are now the first to show their contempt, and employ their little arts of insult and abuse. They surround him with loud cries; flap him with their wings, and are ready to show their courage to be great, as they are sensible that their danger is but small. Astonished and dizzy, the wretched owl is obliged to sit and suffer all their insults; to which he can only reply by turning his head and rolling his eyes with an air of stupidity. An owl cannot show himself by day without setting the whole neighbourhood in an uproar; if he should attempt to fly, the noise is increased, and the consciousness of their own security is enough to make all the little birds assist each other in tormenting the common foe. However, it sometimes happens that his pursuers pay dear for their amusement; for, when they hunt him till the evening begins to close, and his faculties to

return, the foremost of his enemies is sure to become his prey. The bird-catchers profit by this public and declared aversion; for, having previously smeared the branches of a hedge with bird-lime, they conceal themselves, and, by imitating the owl, draw together a number of little birds, who, instead of avenging themselves upon their inveterate enemy, are stuck fast in the hedge.

None of this tribe of birds have made so strong an impression upon the superstitious minds of the vulgar as the white owl, whose habits and voice conspire to make him an object of terror. Towers, belfries, the roofs of churches, and other lofty buildings, afford this creature a retreat during the day, where he remains snoring like a man who sleeps with his mouth open, till the evening is sufficiently advanced for him to seek his prey. About twilight this owl is seen flitting about the churchyards, and screeching most tremendously; which, joined to the awfulness of the scene, re-echoed from the tombs and cloysters in the stillness of the night, inspire dread and terror in the minds of all those who are under the influence of prejudice, and who believe in omens, witchcraft, and apparitions. This bird has long been considered by them as the messenger of death; and they are impressed with an idea, that if it perches upon a house and begins to scream, the inhabitant will soon be numbered with the dead.

> "Perched on the roof the bird of night complains,
> In lengthened shrieks, and dire funereal strains."

This is widely different from the opinion entertained of the white owl by the Mongol and Kalmuc Tartars, who almost pay it divine honours, because they attribute to this species the preservation of the founder of their empire, Cingis Khan. That prince with his small army happened to be surprised and put to flight by his enemies, and forced to conceal himself in a little coppice; an owl settled on the bush under which he was hid, and induced his pursuers not to search there, as they thought it impossible any man could be concealed in a place where that bird would perch. From henceforth, says Mr. Pennant, they held it to be sacred, and every one wore a plume of the feathers of this species on his head.

M. Buffon assures us, that these owls will not live in a state of confinement. He caught several by placing a small net at the holes where they lodge in old buildings: but they refused all nourishment, and, after being shut up ten or twelve days in the aviary, died of hunger. In the day-time they remained quite motionless upon the floor; but in the evening they mounted the highest perch and began their hissing noise. The count supposed this note to be designed as a call for their old companions without, as they were frequently visited by others who came and perched upon the roof of the aviary, where they made the same dismal hissing, and soon after permitted themselves to be taken in a net.

Some of the species, and particularly this kind, are of great service to the farmer in clearing his

barns of mice; and as the young of these birds are a long time in the nest, and are fed even after they can fly, many hundreds of mice must be procured for their subsistence. This is evident from the great quantity of bones and fur, which is sometimes found in their haunts in the form of small pellets. A gentleman, on grubbing up an old pollard ash that had been the habitation of owls for many generations, found at the bottom many bushels of this rejected stuff.

We shall conclude this account with an anecdote of the little owl,* which is about the size of a blackbird, and whose note resembles the voice of a young man, who repeatedly calls *hémé, édmé*. It resides among solitary ruins, caverns, and old deserted castles; where, during the night, it continues, at intervals, its singular cry, and *hémé, édmé* is re-echoed from different parts of the building. "Happening," says Buffon, "to sleep in one of the old turrets in the castle of Montbard, a little owl alighted on the window-frame, and before day-break, at three o'clock in the morning, awakened me with its cry, *hémé, édmé*. As I was listening to this sound, which was the more remarkable as it was close beside me, I heard one of my servants who slept in the room over mine open the window, and, deceived by the resemblance of the scream *édmé*, call out, *Who's there below? My name is not Edme; it is Peter.*"

* Strix passerina. Linn.

SHRIKE.

GENERIC CHARACTER.

Bill strong, and hooked at the end.
Each side of the upper mandible marked with a notch.
Tongue jagged as if torn at the extremity.
The outermost toe joined to the middle one as far as the first joint.

SPECIFIC CHARACTER.

LANIUS EXCUBITOR. L. cauda cuneiformi lateralius alba, dorso cano, alis nigris, macula alba. *Linn. Syst. Nat. Gmel.* 1. p. 300.

Tail wedge-shaped, with white sides, back hoary, wings black, marked with a white band.

LANIUS CINEREUS. *Briss. Av.* 2. p. 141.

GREATER BUTCHER-BIRD, or MATTAGESS. *Will. Orn.* p. 87. pl. 10. *Alb. Av.* 2. pl. 13.

GREAT SHRIKE. . *Buff. Birds,* 1. p. 239. pl. 20. *Brit. Zool.* 1. no. 71. pl. 33. *Arct. Zool.* 2. p. 378. no. 127. *Lath. Syn.* 1. p. 160. no. 4. *Bew. Birds,* p. 58.

THE savage habits of this little creature have procured it the name of the butcher-bird; and indeed it seems well entitled to this appellation, when we

consider its singular manner of killing and devouring its prey. It will seize small birds by the throat, and strangle them; after which it fixes them on a thorn, and then pulls them to pieces with its bill. This made the Germans call it the wurch angel, or suffocating angel. The Russians tame these birds for the diversion they afford them in killing their prey. They stick a rod with a sharp point into the wall of a room, on which the shrike perches, and turn loose a small bird, which the butcher instantly seizes by the throat, strangles, and then spits it on the point of the stick, drawing it on with its claws and bill. In this manner it serves as many as are put into the room, and afterwards eats them, thus impaled, at its leisure.

This species of shrike is about the size of a thrush, and has a strong hooked bill, well calculated for the office which nature has appointed it to perform. These birds breed among the hills, either on the ground, or on the loftiest trees. Their nest is made with heath and moss, and lined with wool and gossamer; this they generally fasten to the triple cleft of a branch. In this warm bed of down the female deposits five or six little eggs of a dull olive-green, spotted at the thickest end with black; and as soon as the young make their appearance, she provides for them a meal of caterpillars and other insects: in a little time, however, she leaves this simple food and instructs them in carnage, teaching them to eat bits of flesh, which her mate brings with wonderful care and attention. The character

we have already given of this bird does not seem to admit of much maternal tenderness; and yet, very different from the other birds of prey, which expel their helpless brood, the shrike treats her infant young with the most tender affection, and even after they are grown continues her regard towards them. As the autumn approaches, the offspring assist the parents in providing for their common support; and this family compact continues to exist during the winter; nor is the harmony of it disturbed, till the genial influence of spring calls them to new pursuits, and excites them to form other unions.

These little creatures are very spirited, and their intrepidity is such that they will frequently attack birds of prey much larger than themselves, especially if the intruders dare to approach their nest. Whenever they are molested during the time of incubation, or while their young require protection, they rush upon the enemy, and, making all the noise they are able, generally drive him off the field; though it sometimes happens that they fall to the ground with the bird they have so furiously fixed upon, and in that case the battle is seldom concluded without at least the death of one of the combatants.

In the fourth volume of the American Philosophical Transactions, there is a paper by Mr. Heckewelder, giving an account of what in that country they call the *nine-killer*. This is only another name for the shrike, which they have given him from a

supposition that he sticks up nine grasshoppers in succession. This information the above gentleman received, upon inquiring the reason why so many grasshoppers were spitted upon the sharp thorny branches of some trees in his orchard. From these insects being frequently left untouched for a considerable time, it is supposed that the wily bird sticks them there to allure other prey to the spot, that in the end he may feed upon something more substantial than a grasshopper.

COCKATOO.

Designed by W. Daniell.

Published by Messrs. Cadell & Davies, London, March 1. 1807.

PIES.

PARROT.

GENERIC CHARACTER.

Strong hooked bill; upper mandible moveable.
Tongue large, blunt, rounded, and fleshy.
Four toes on each foot; two placed forwards and two backwards.

SPECIFIC CHARACTER.

PSITTACUS MOLUCCENSIS. Ps. albus in colorem dilute roseum inclinans, crista subtus rubra, rectricibus lateralibus intus a basi ad medium usque sulphureis. *Linn. Syst. Nat. Gmel*, 1. p. 331.

White inclining to a pale rose-colour, the crest red underneath; the side tail feathers, from the base to the middle, are of a brimstone-colour on the inner webs.

Cacatua rubro cristata. *Briss. Av.* 4. p. 209. no. 10.

MOLUCCA, or GREAT RED-CRESTED, COCKATOO. *Lath. Syn.* 1. p. 257. no. 62. *Buff. Birds*, v. 6. p. 85. *Edw. Av.* 4. t. 160.

THE beautiful crest of the cockatoo gives him a picturesque appearance, and an expression of dig-

nity that is not to be found in the rest of this most extensive tribe. These birds spread through the southern parts of India, where they are found in inconceivable numbers. They are gentle in their manners, and are attentive and obedient, but not so easily taught as other parrots. They scream abominably, and sometimes are not to be pacified without a piece of bread or other food being given them. One of these birds, perched in the great room at Exeter 'Change, continued to squall almost incessantly during the time we were there; and, as if his note was inspiring, the other animals sometimes joined their voices, so that the full concert was hardly to be endured. The forests in the tropical countries swarm with parrots, who live chiefly on fruit and seeds. They go in flocks of immense numbers, and are excessively noisy, particularly during their flight. They generally breed in hollow trees, where they lay two or three speckled eggs; and we are assured that the natives of these countries are particularly vigilant to discover where the parrot nestles, that they may secure the young birds, and bring them up for sale. The natural harsh tone of the parrot is often much improved by education; and his imitative property, while it excites our wonder, implies a peculiarity in the organs of the voice, and a strength of mechanical recollection that is not to be equalled by any other bird. Accordingly we find sufficient room in the bill for the tongue to play freely, and, from its singular form and great capacity, it is well calculated to

assist the tongue in the modulation of sounds. To this power to imitate the human voice the parrot joins a fixed attention to what is said, which greatly facilitates his purpose, and enables him to repeat the words of others. When taken very young they are capable of great improvement, and show astonishing instances of memory. Rhodiginus mentions one that recited correctly the apostles' creed. This bird belonged to a cardinal. We should suppose the attachment of these creatures to be merely mechanical, if we quote the note communicated to the Count de Buffon by Madame Nadault, his sister, who had a parrot that was excessively fond of the cook-maid, and followed her every where. If she had been absent for any time, the bird would, on her return, climb to her shoulders, and lavish his caresses upon her with every appearance of fondness. While the girl was ill of a slight wound, which was tedious in the healing, the parrot never failed to visit her chamber the first thing every morning, and to continue his attention during the cure. Yet this strong predilection for the girl seems to have been more directed to her office in the kitchen than her person; for, when another cook-maid succeeded to her, the parrot showed the same degree of fondness the very first day.

This indiscriminate regard seems only to apply to their attachment to us, which must be always artificial; it does not operate in any degree to diminish the opinion we may entertain of their natural affec-

tion towards each other, of which so strong an instance is related by Bonnet.

A male and female of the little red-headed species were lodged together in a large square cage. The vessel which held their food was placed at the bottom. The male usually sat on the same perch as the female, and close beside her. Whenever one descended for food the other always followed; and when their hunger was satisfied, they returned together to the highest perch of the cage. They passed four years together in this state of confinement; and from their mutual attentions and satisfactions, it was evident that a strong affection for each other had been excited. At the end of this period the female fell into a state of languor, which had every appearance of old age; her legs swelled, and knots appeared upon them. It was no longer possible for her to descend and take her food as formerly; but the male assiduously brought it to her, carrying it in his bill and delivering it into hers. He continued to feed her in this manner with the utmost vigilance during four months. The infirmities of his mate, however, increased every day; and at length she became no longer able to sit upon the perch: she remained now crouched at the bottom, and from time to time made a few useless efforts to regain the lower perch; while the male, who remained close by her, seconded these her feeble attempts with all his power. Sometimes he seized with his bill the upper part of her wing; sometimes he took hold of her bill, and attempted

to raise her up, repeating his efforts for that purpose several times. All his actions indicated a strong desire to aid the weakness of his companion, and alleviate her sufferings. When the female was on the point of expiring, her unfortunate partner seemed exceedingly agitated. He went round and round her without ceasing, redoubled his assiduities, and attempted to open her bill, in order to give her some nourishment: his emotions increased when he found this was impossible, and at intervals he uttered the most plaintive cries; at other times regarding her with a fixed attention. His faithful companion at length expired, and was followed in a few months by her mate, who pined for her loss till his death.

We are assured by Labat that the parakeets in Brasil are the most beautiful as well as the most talkative birds in nature. They are very tame, and seem fond of mankind; they often talk with him in their noisy manner, and appear resolved to have the last word. Their flesh is the most delicate imaginable, and highly esteemed by the natives. They swarm in the woods; but as they are green, and exactly the colour of the leaves among which they sit, the fowler only hears their prattle, without being able to see a single bird. The coincidence of colour between their bodies and the surrounding foliage would secure them effectually from the fowler, if they would but be quiet. Unfortunately, however, for these little animals, they are restless and ever on the wing, so that in flying from one

tree to another he has but too frequent opportunities of destroying them. They chiefly feed on berries; and as soon as one tree is stripped, a messenger flies off to another; and if that will afford a repast, he calls the rest by a particular note, which they all immediately obey. This opportunity is embraced by the fowler, who fires in among the flock while they are yet on the wing, and seldom fails to bring down a part of them. When they see their companions fall they make a hideous noise, as if they were chiding the destroyer; this they continue to do without ceasing till they see him preparing to fire again.

We have already observed that the savages generally take the parrots in their nest, as they are easily reared, and soon educated. But the Caribbs, according to Labat, catch them also after they are old: they observe the trees on which they perch in great numbers in the evening, and after dark they carry some lighted coals to the spot, on which they throw gum and green pimento: the birds, involved and stifled in the thick smoke, fall to the ground, and are seized by the savages, who tie their feet together, and recover their lost senses by throwing water on their heads. They have another way of bringing down the parrots without hurting them much, by shooting them with very long arrows headed with a ball of cotton. However, the old birds thus caught are very difficult to tame, and these people have but one method to render them tractable: this is by blowing the smoke of tobacco

into their bill, which makes them very sick and faint, and renders them gentle and pliant. If they grow mutinous again, the dose is repeated, and thus in a little time their dispositions are softened. This severe discipline is highly necessary to correct their envenomed temper; for they bite most cruelly without provocation, and can hardly be made to quit their hold. However, the tobacco smoke seems to be a sovereign remedy, and is always produced upon these occasions.

The feathers of these birds, as well as their bodies, are an article of traffic among the savages. They claim a certain number of trees on which the parrots make their nests. This is a kind of property, from which they derive an income by selling the birds and bartering their feathers. These trees descend from father to son, and are often their richest inheritance.

This climate is too cold for the parrot's warm constitution; for, although he bears our winter, and will live with us a considerable time, yet he always seems sensible of its rigour, and will frequently creep near the fire, and appear perfectly sensible of the comfort which he derives from the heat. He has been known to live in this country more than thirty years, and frequently will reach to fifteen or twenty years if properly taken care of. Indeed we have little to complain of on this head, as too much time is often trifled away in instructing an animal which at best can only be made to mock its mistress.

The following remarks of Dr. Goldsmith, upon this subject, may be here introduced with great propriety:

"The extreme sagacity and docility of the bird may plead as the best excuse for those who spend whole hours in teaching their parrots to speak; and indeed the bird on these occasions seems the wiser animal of the two. It at first obstinately resists all instruction; but seems to be won by perseverance, makes a few attempts to imitate the first sounds, and when it has got one word distinct, all the succeeding come with great facility. The bird generally learns most in those families where the master or mistress has the least to do; and becomes more expert in proportion as its instructors are idly assiduous. In going through the towns of France some time since, I could not help observing how much plainer their parrots spoke than ours, and how very distinctly I understood their parrots speak French, when I could not understand our own, though they spoke my native language. I was at first for ascribing it to the different qualities of the two languages, and was for entering into an elaborate discussion on the vowels and consonants; but a friend that was with me solved the difficulty at once, by assuring me that the French women scarcely did any thing else the whole day than sit and instruct their feathered pupils; and that the birds were thus distinct in their lessons in consequence of continual schooling."

"The ease with which this bird is taught to speak," continues the same author, "and the great number

of words it is capable of repeating, are very surprising. We are assured by a grave writer, that one of them was taught to repeat a whole sonnet from Petrarch; and that I may not be wanting in my instance, I have seen a parrot belonging to a distiller, who had suffered pretty largely in his circumstances from an informer who lived opposite to him, very ridiculously employed. This bird was taught to pronounce the ninth commandment, "*Thou shalt not bear false witness against thy neighbour*," with a clear, loud, articulate voice. The bird was generally placed in its cage over against the informer's house, and delighted the whole neighbourhood with its persevering exhortations."

The society which the parrot forms with man by the use of speech, is more intimate and pleasing that what the monkey can claim from its antic imitations of our gestures and actions. This bird's play of language without meaning is exceedingly whimsical, and his conversation is sometimes more amusing, without being more nonsensical, than much other talk. The Count de Buffon mentions a parrot which grew old with its master, and shared with him the infirmities of age. Being accustomed to hear scarce any thing but the words *I am sick*, Je suis malade; when a person asked it, *How d'ye, Poll, how d'ye?* (Qu'as-tu, perroquet, qu'as-tu?) *I am sick*, it replied with a doleful voice, stretching itself over the fire, *I am sick*, Je suis malade.

It is very uncommon for parrots to breed in our temperate climates, but there are some instances of

their being reared in France. M. de la Pigeoniere had a cock and hen in the town of Marmande, in Agenois, which hatched regularly each spring, for five or six years, and the young parrots lived and were brought up by the parents. Each hatch consisted of four eggs, three of which succeeded. The birds were shut in a room with nothing but a barrel open at top and filled with saw-dust; sticks were fastened on the outside, that the male might scramble up and sit beside the hen. In entering the room it was necessary to wear boots, for the male would not suffer any one to approach his mate without flying furiously at him.

Such instances as these, however, are very rare: therefore the well authenticated account of a parrot hatched at Rome, as related in the second volume of the Annals of Philosophy, from the Journal de Physique, is highly deserving of attention. The following is the account:

In the year 1786, M. Passeri, of Rome, bought at Marseilles a female parrot, of the Amazonian tribe, and some months afterwards was presented at Avignon with a male of the same kind. He put these together, but without chaining them by the leg, or affixing any other badge of slavery, and suffered them to walk about the room at their ease. They often rested on the common perch; but sometimes they retired during the night to a large iron cage, which was never shut, and in all other places where they afterwards were, they enjoyed the fullest liberty. From the first moment they met they

manifested a very striking attachment to each other; and their friendship was so remarkable, that, if they were separated only a few minutes, they exhibited the greatest agitation, sending forth piercing cries, and never becoming quiet till they were put together again. When M. Passeri first became possessed of them, they had attained their full growth, but he was unable to determine their age. The male distinctly pronounced several French words, and continued to do so; the female on the contrary made only a shrill cry, and prated a good deal without pronouncing a single word. These birds travelled with their master to different parts of Italy, making their journey separately confined in a small wooden box, called by the French a *sabot*. The female has laid eggs several times: the first was at Forti, six years ago. She laid two, in a trough near a kitchen chimney, and continued to sit on them notwithstanding the noise of people passing and repassing, and the unforeseen circumstance which obliged Mr. Passeri to change his abode. The second time was at Valentano. The bird then laid two eggs in the corner of a room, without preparing any nest. She sat on them some days, but it was thought advisable afterwards to put them under a pigeon: notwithstanding they were covered some time, they were not hatched. She laid a third time, about the middle of May 1800. The number of eggs was the same as before; they were laid on the ground, and some days afterwards were found broken; whether in consequence of any inter-

ference of the male, or by what particular means, was not ascertained: however, in the beginning of June, the parrot laid two more eggs; but this time she deposited them in an earthen vase, half filled with cinders, which was on the ground, just within a door that concealed the bird while sitting. She sat forty days, and on the fifteenth of July an egg was hatched, but the young one died the next day. M. Passeri, wishing to prove the birth of a parrot at Rome, carried it to the hospital of San Spirito; but it was found too far advanced in putrefaction, and was therefore thrown away: it was seen, however, by several surgeons' pupils who were present. The fourth, or, to speak more correctly, the fifth time the female produced, she laid three eggs in the same vessel, or *scaldino*, filled with ashes, and standing in the door-way as the year before. The incubation continued forty days, and on the twenty-fourth of June a young bird came forth. Some days afterwards the other eggs were thrown away, as being unproductive. This infant parrot remained almost naked the first fifteen days; but afterwards the small gray quills of the wings began to show themselves, and by the twentieth of August (that is to say, at the end of about two months,) the bird was completely clothed. It was the fourteenth of July before the parrot began to open its eyes; and when it was well furnished with plumage, the mother, who had constantly slept in the nest, forsook it, and returned to the male as usual. On the twenty-fifth of August the young parrot slept out of

the nest. The following fact deserves particular attention: M. Passeri, observing the growth of the young parrot, and fearing lest the scaldino should be too small to hold the mother and her young one, took a basket lined with feathers, &c., and put it in the place of the scaldino, behind the door. The mother went and seated herself in it immediately, and appeared to be very well satisfied with the new habitation; but some hours after she began to cut away one side of the basket with her bill, and in three days accomplished her job, having made an opening of four or five inches in the lower part, and six or seven in the upper. The osier was cut as neatly as if the sharpest knife had been employed. There can be no doubt that the mother's object was to facilitate the departure of the young bird from the basket, when he had acquired the requisite strength in his legs. When this account was written the young bird was growing very fast, and it was supposed he would exceed his parents in size.

Among the many parrots that have been imported into this country, we have not heard of any whose imitative talent could be compared with the one which colonel O'Kelly purchased at Bristol. He gave a hundred guineas for the bird, which not only repeated a great number of sentences, and answered many questions, but was also able to whistle many tunes. It appeared to have an accurate ear for music, would beat time while it whistled a tune; and if by chance it mistook a note, it would revert to the bar where the mistake was made, and,

still beating regular time, would finish the tune with wonderful accuracy. The death of this extraordinary bird was thus announced in the General Evening Post, for the ninth of October, 1802: "A few days ago died, in Half-moon street, Piccadilly, the celebrated parrot of colonel O'Kelly. This singular bird sang a number of songs in perfect time and tune. She could express her wants articulately, and give her orders in a manner nearly approaching to rationality. Her age was not known; it was, however, more than thirty years, for previously to that period Mr. O'Kelly bought her at Bristol for a hundred guineas. The colonel was repeatedly offered five hundred guineas a-year for the bird, by persons who wished to make a public exhibition of her; but this, out of tenderness to the favourite, he constantly refused. The bird was dissected by Dr. Kennedy and Mr. Brooke; and the muscles of the larynx, which regulate the voice, were found, from the effect of practice, to be uncommonly strong."

RAVEN.

GENERIC CHARACTER.

Bill strong, convex, and sharp-edged.
Nostrils covered by reversed bristly feathers.
Tongue cleft at the tip.
Two of the toes connected as far as the first joint.

CORVUS CORAX. C. ater, dorso atro-cærulescente, cauda subrotunda. *Linn. Syst. Nat. Gmel.* 1. p. 364.
Black: back of a blueish black; tail somewhat rounded.
CORVUS MAXIMUS. *Scop. Ann.* 1. p. 34. no. 45.
RAVEN. . . *Buff. Birds,* 3. p. 11. pl. 58. *Will. Orn.* p. 121. t. 18. *Brit. Zool.* 1. p. 218. no. 74. *Alb. Av.* 2. p. 19. t. 20. *Lath. Syn.* 1. p. 367. no. 1. *Bew. Birds,* p. 68.

RAVENS will bear the extremes of heat and cold; no climate comes amiss to them; they are heard of from the Cape of Good Hope to Greenland, on the one side, and from Canada to Mexico, on the other.

The raven, when domesticated, is well known for his pilfering and impudent qualities; he is always

busy and inquisitive, constantly introducing himself wherever he can, and as constantly carrying off whatever he is able to lay hold of. We have frequently seen him hop away with an old black silk cloak, which a poor woman used to pull off in the house before she began her work; but he seems more particularly attached to money, tea spoons, or rings; these he will slily seize, and, if not observed, carry them to his hiding-place, where they sometimes remain for a considerable time before they are discovered. This bird is inclined to prate, and may be taught to pronounce several words: it appears too, that he possesses great musical talents; but we must beg leave to decline saying any thing of this accomplishment, not having been so fortunate as Dr. Goldsmith, who "heard a raven sing the Black Joke with great distinctness, truth, and humour."

Ravens build their nests on the tops of old deserted towers, in the clefts of rocks, or on the high branches of large straggling trees, and they are said to be particularly attached to the place where they are bred. About the end of February, or beginning of March, the female lays five or six eggs, of a pale blueish green, marked with spots and streaks of a dirty colour. She sits about twenty days; and her attachment to her eggs during the time is strongly marked in the following account which Mr. White has given of this bird: "In the centre of a grove near Selborne, there stood an oak, which, though shapely and tall on the whole, bulged out into a large ex-

crescence near the middle of the stem. On this tree a pair of ravens had fixed their residence for such a series of years that the oak was distinguished by the title of "The Raven-Tree." Many were the attempts of the neighbouring youths to get at this aerie; the difficulty whetted their inclinations, and each was ambitious of surmounting the arduous task; but when they arrived at the swelling, it jutted out so in their way, and was so far beyond their grasp, that the boldest lads were deterred, and acknowledged the undertaking to be too hazardous. Thus the ravens continued to build, nest upon nest, in perfect security, till the fatal day arrived on which the wood was to be levelled. This was in the month of February, when these birds usually sit. The saw was applied to the trunk, the wedges were inserted into the opening, the woods echoed to the heavy blows of the beetle or mallet, the tree nodded to its fall; but still the dam persisted to sit. At last when it gave way the bird was flung from her nest; and, though her parental affection deserved a better fate, was whipped down by the twigs, which brought her dead to the ground."

The male is assiduous in providing his mate with food during the time she sits, and when the young brood make their first appearance he watches for their safety, and ventures his life to secure them from danger. If he sees a kite, or other rapacious bird, approach the nest, he immediately takes wing, and, getting above his foe, dashes downwards and strikes him violently with his bill. The contest is

frequently obstinate; both fight in earnest, both contend for the ascendency, and that with such perseverance, that they sometimes mount entirely out of sight, till, overcome with fatigue, one or both fall to the ground. Their attachment to their young lasts even after they can fly, as M. Hebert has proved by the observations he made on the ravens which inhabit the mountains of Bugey. This gentleman noticed a family of them which bred every year opposite to his windows upon the rocks which terminate the prospect. The young, to the number of four or five, sat on the large detached fragments about the middle of the precipice, where they were easily seen, and drew notice by their continual wailing. Every time that the parents brought them food, which happened frequently during the course of the day, they called with a cry very different from their other noise. Sometimes one tried to fly; and after a slight essay, it returned to settle upon the rock. Some one was generally left behind, and its wailing then became incessant. After the young had strength sufficient to fly, that is fifteen days at least after leaving the nest, the parents conducted them every morning to the field, and in the evening led them back. It was commonly five or six in the afternoon when the family returned, and they spent the rest of the day in noisy brawling.

The plumage of these birds is known to vary in some countries, perhaps from the influence of climate, as they have been seen quite white near the arctic circle, and pied in the Feroe isles. Ad-

dison alludes to the raven's loquacity as the cause of this change:

> The raven once in snowy plumes was drest,
> White as the whitest dove's unsullied breast;
> His tongue, his prating tongue, has changed him quite
> To sooty blackness, from the purest white.

In clear weather ravens may be seen at a great height in the air. They fly in pairs, and make a deep loud noise, which differs from their common croaking. Their greedy disposition, and appetite for carrion, make them of great service in the neighbourhood of towns and cities, especially in warm countries, where they devour the rotten carcasses and filth that would otherwise prove a nuisance. In Greenland they feed on the offal of the seals, and on the shell-fish they find upon the shore; these they carry to a height, and drop them on a rock to break the shell and get at the contents. The Greenlanders are said to eat their flesh, to use their wings for brushes, and to split the quills into fishing-lines.

Among the American savages, the raven is the emblem of returning health, and his croaking voice is mimicked by their physicians when they invoke him in behalf of the sick.

CUCKOO.

GENERIC CHARACTER.

Bill somewhat arched.
Tongue short.
Feet formed for climbing.

SPECIFIC CHARACTER.

CUCULUS CANORUS. C. cauda rotundata nigricante albo-punctata. *Linn. Syst. Nat. Gmel.* 1. p. 409.
Tail black, with white spots upon it.
CUCKOO. . . . . *Buff. Birds,* 6. 262. *Brit. Zool.* 1. p. 232. pl. 36. *Arct. Zool.* 2. p. 266. *Will. Orn.* p. 97. pl. 77. *Albin. Av.* 1. t. 8. *Lath. Syn.* 1. p. 509. no. 1. *Bew. Birds,* p. 104.

THE natural history of the cuckoo was almost as well known in the age of Aristotle as at present. A bird so remarkable for its manners, and its voice, could hardly escape particular notice; and accordingly we find that almost all nations have named it from its simple and uniform note, so distinctly formed and so often repeated. It belongs exclusively to the male to sing, who generally sits perched

on a dry branch, and at intervals repeats his note, which lasts from the middle of April to the latter end of June. The cuckoo is a migratory bird, and visits us early in the spring, but is silent for some time after its arrival. About the end of September, or beginning of October, it departs for other countries, and is supposed to go into Africa.

Every body has heard of the singular manner in which the female cuckoo disposes of her eggs, and the care she takes to deposit them in the nests of other birds at a time when the old ones are absent. It is generally believed that she lays but one egg, though there is no reason to suppose that she cannot lay more; and an instance is recorded where two eggs were found in one nest. However, in most cases she leaves but one, and this is rather larger than the nightingale's, of a grayish white, and marked with spots of dull violet brown. Dr. Jenner has traced the young one from its shell, and has related the following history of its singular manners, which is published in the second part of the fifty-eighth volume of the Philosophical Transactions:

"On the 18th of June, 1787, I examined the nest of a hedge-sparrow, which then contained a cuckoo's and three hedge-sparrow's eggs. On inspecting it the day following, the bird had hatched; but the nest then contained only a young cuckoo and one hedge-sparrow. The nest was placed so near the extremity of a hedge, that I could distinctly see what was going forward in it; and to my

great astonishment I saw the young cuckoo, though so lately hatched, in the act of turning out the young hedge-sparrow. The mode of accomplishing this was very curious. The little animal, with the assistance of its rump and wings, contrived to get the bird upon its back; and making a lodgement for its burthen, by elevating its elbows, clambered backwards with it up the side of the nest, till it reached the top; where, resting for a moment, it threw off its load with a jerk, and quite disengaged it from the nest. It remained in this situation for a short time, feeling about with the extremities of its wings, as if to be convinced whether the business was properly executed, and then dropped into the nest again. With these, the extremities of its wings, I have often seen it examine as it were an egg and nestling before it began its operations; and the nice sensibilities which these parts seem to possess, seemed sufficiently to compensate the want of sight, which as yet it was destitute of. I afterwards put in an egg, and this, by a similar process, was conveyed to the edge of the nest and thrown out. These experiments I have since repeated several times, in different nests, and have always found the young cuckoo disposed to act in the same manner. In climbing up the nest, it sometimes drops its burthen, and thus is foiled in its endeavours; but after a little respite the work is resumed, and goes on almost incessantly till it is effected. The singularity of its shape is well adapted to these purposes; for, different from other new-

ly hatched birds, its back from the scapulæ downwards is very broad, with a considerable depression in the middle. This depression seems formed by nature for the design of giving a more secure lodgement to the egg of the hedge-sparrow, or its young one, when the young cuckoo is employed in removing either of them from the nest. When it is about twelve days old this cavity is quite filled up, and then the back assumes the shape of nestling birds in general.

"It sometimes happens that two cuckoo's eggs are deposited in the same nest, and then the young produced from one of them must inevitably perish. Two cuckoos and one hedge-sparrow were hatched in the same nest, and one hedge-sparrow's egg remained unhatched. In a few hours after, a contest began between the cuckoos for the possession of the nest, which continued undetermined till the next afternoon, when one of them, which was somewhat superior in size, turned out the other, together with the young hedge-sparrow and the unhatched egg. The combatants alternately appeared to have the advantage, as each carried the other several times to the top of the nest, and then sunk down again, oppressed by the weight of the burthen, till at length, after various efforts, the strongest prevailed, and was afterwards brought up by the hedge-sparrow."

It appears a remarkable deviation in the general law of nature, for the cuckoo to deposit her eggs in the nest of another bird; and the singularity is in-

creased when we consider that the young one, whose size when fledged is little inferior to a pigeon, is destined to inhabit the small nest of the hedge-sparrow, or other nests equally diminutive: but the attempt of the cuckoo to leave her egg to the care of another does not always succeed, and she is sometimes beaten off the field by adversaries of a much inferior size. A little hen red-breast has been seen to unite with her mate in repelling a female cuckoo from the nest. They attacked their enemy with such fury, that in a short time the cuckoo, being exhausted, began to totter, lost its balance, and turned on the branch, from which it hung by the feet, its eyes half shut, its bill open, and its wings expanded. Having remained about two minutes in this attitude it quitted the branch, flew to perch at a distance, and appeared no more. The female red-breast resumed her incubation, and all her eggs were hatched, and formed a little family, that long lived attached to the district where this circumstance happened.

After the cuckoo leaves the nest it follows its supposed parent for a short time*, but soon leaves her to pursue its own specific habits, and it is more than probable that the nurse is not sorry to get rid of such an overgrown child. Cuckoos, though soli-

* This circumstance is confirmed by Mr. Pennant, who in June, 1778, saw a young cuckoo almost full grown, in a white wagtail's nest, who fed it as if it had been her own offspring; and for many days after the cuckoo fled, it was often seen perched on the wall adjacent to the nest, still attended and fed by the wagtail.

tary, are susceptible of a sort of education, and M. Buffon tells us that many of his acquaintance reared and tamed them; they were fed with minced meat, either raw or cooked, with insects, eggs, fruits, &c. "One of the cuckoos thus bred," says the count, "knew its master, answered his call, followed him to the sport, perched on his fowling-piece; and if it found a black cherry tree on the road, it flew to it, and returned not till satiated with the fruit; sometimes it did not join its master again the whole day, but followed him at a distance, shifting from tree to tree. When at home, it was permitted to run about, and to roost at night."

Many think it probable, that some of these birds continue with us all the year, and during the winter remain concealed and torpid in the hollow trees. Willughby relates a story, which, if it be true, tends strongly to confirm this opinion. It is proper to remark that he delivers it upon the credit of another. "The servants of a gentleman in the country, having stocked up, in one of their meadows, some old dry rotten willows, thought proper on a certain occasion to carry them home. In heating a stove, two logs of this timber were put into the furnace beneath, and fire applied as usual. But soon, to the great surprise of the family, was heard the voice of a cuckoo, singing three times from under the stove. Wondering at so extraordinary a cry in winter-time, the servants ran and drew the willow logs from the furnace, and in the midst of one of them saw something move; wherefore, taking an axe, they opened

the hole, and, thrusting in their hands, first they pulled out nothing but feathers; afterwards they got hold of a living animal; and this was the cuckoo that had waked so very opportunely for its own safety. It was, indeed," continues our historian, "brisk and lively, but wholly naked and bare of feathers, and without any winter provision in its hole."

The story further says, that the boys kept this cuckoo alive in the stove for two years after this event; but whether it repaid them with a second song, the author of the tale has not thought fit to inform us.

It is well known that the moulting of the cuckoo is slower and more complete than most other birds, and we have the authority of Buffon for saying that in the winter season they are found in the hollow trees perfectly naked.

The vulgar notion respecting the saliva of the cuckoo, which is at certain times found on almost every plant, is without the smallest foundation, and originates in the frothy exudation of an insect, the *cicada spumaria* Linn., which is evacuated on brambles, grass stalks, &c., for the purpose of concealing the larvæ. We are gravely told that the little green insect which inhabits this froth, or cuckoo spittle as it is termed, is able to kill the cuckoo by pricking it beneath the wing.

The antient mythologists have assigned this bird an office which seems much better calculated for the dove than the cuckoo. They tell us that Jupiter

took the opportunity, when his sister Juno was alone on the Dictean mount, to raise a violent storm, and having taken the form of a cuckoo he alighted on the knees of the goddess, who, seeing it drenched and beaten by the tempest, took compassion on the bird and dried it in her bosom; the god then resumed his proper form, and afterwards became the husband of his sister. From that time the Dictean mount was called Coccygian, or Cuckoo mountain; and hence the origin of the Jupiter-cuculus.

We cannot conclude the account of the cuckoo without noticing the sagacious little African species. There is nothing particularly striking in the appearance of this bird; but its manners are so singular, that what we are going to relate might be considered as an idle tale, if it was not well authenticated by travellers of veracity. From the readiness with which this little creature discovers the nests of bees, it has obtained the specific name of Indicator, and is likewise called by the African farmers, the Honey-bird. We are assured that as soon as the indicator observes a nest of honey it immediately flies to the first human being it can find, and by its chirping and fluttering invites the person to follow, who generally obeys the summons, as the bird is well known in the country. It leads the way directly towards the spot, flying from bush to bush, or from one ant-hill to another; and if the person does not follow quick enough to please the honey-bird, it will increase its chirping, stop and flutter about, and try every art to rouse his attention. When

nearly arrived at the nest, it takes its station in a tree and observes a profound silence, while its companion plunders the honey. This operation is no sooner performed than the bird flies to the spot, and there makes a delicious repast on a portion of the honey, which is always left behind as a reward for its services.

Dr. Sparrman, whose voyage to the Cape is so well known, assures us, that he has several times been at the taking wild bees' nests in this manner, and that he has twice observed the bird hover over the spot where the honey is to be found, for a few seconds, before it takes its station on the tree. This gentleman was shown a nest which was said to belong to this cuckoo. It was composed of slender filaments of bark, woven together in the form of a bottle; the neck and opening hung downwards; and a string, in an arched shape, was suspended across the opening, fastened by the two ends, probably for the bird to perch on.

KING FISHER.

Designed by W. Daniell

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KINGFISHER.

GENERIC CHARACTER.

Bill long, thick, straight, and sharp-pointed.
Tongue fleshy, very short, terminating in a sharp point.
Outmost toe partially connected to the middle one.

SPECIFIC CHARACTER.

ALCEDO ISPIDA. . . A. brachyura supra cyanea, subtus fulva, loris rufis. *Linn. Syst. Nat. Gmel.* 1. p. 448.

Upper part of the body azure; orange-coloured beneath; the legs red.

β ISPIDA SENEGALENSIS. *Briss. Av.* 4. p. 485. no. 7. t. 39. f. 1.

EUROPEAN KINGFISHER. *Buff. Birds,* v. 7. p. 158. pl. 170. *Lath. Syn.* 1. part 2. p. 626. no. 16. *Alb. Av.* 1. t. 54. *Will. Orn.* p. 146. tab. 24.

THIS is justly esteemed the handsomest bird in our climate; and Buffon properly observes that none in Europe can compare with the kingfisher in elegance, richness, and luxuriance of colours: it has all the shades of the rainbow, the brilliancy of enamel, and the glossy softness of silk. All the mid-

dle of the back, with the upper surface of the tail, is of a brilliant light blue, which in the sun has the play of sapphire, and the lustre of turquois stone; green is mixed on the wings with blue, and most of the feathers are terminated and dotted with the tints of beryl; the head and the upper side of the neck are dotted in the same manner, with lighter specks on an azure ground.

The count de Buffon, whose descriptions are always elegant, and to whom we are chiefly indebted for this account, says, It would seem that the kingfisher has strayed from those climates where the sun pours incessant torrents of the purest light, and sheds all the treasures of the richest colours. And though our species belongs not precisely to the countries of the east and south, yet the whole genus of these charming birds inhabit those genial regions. This bird, though it derives its origin from the hottest climates, is reconciled to the rigour of our seasons. It is seen in the winter along the brooks, diving under the ice and emerging with its fishy prey.

Its flight is rapid, and it usually traces the windings of the rivulets, screaming while on the wing with a shrill voice, that makes the banks resound. It is very shy, and escapes to some retired spot, where it sits on a branch projecting over the stream, and often remains motionless for whole hours, to catch the moment when a little fish springs above the surface. It then dives perpendicularly into the water, where it continues several seconds, and then

brings up the prey, which it swallows on the bank, after having beat it to death. When the kingfisher cannot find a projecting bough, it sits on some stone near the brink, or even on the gravel; but the moment it perceives the little fish, it takes a spring of twelve or fifteen feet, and drops perpendicularly from that height. Often it is observed to stop short in its rapid flight, exposing the vivid colours of its breast to the full rays of the sun, and fluttering with expanded wings over the smooth surface of the water: the fish, attracted by the brightness and splendour of the appearance, are detained whilst the wily bird darts upon them with unerring certainty. At each pause it continues as it were suspended at the height of fifteen or twenty feet; and when it would change its place, it sinks and skims along within a foot of the surface of the water; then rises and halts again.

It makes its nest in holes in the sides of rivers and brooks, which it scoops out to a considerable depth, and lays from five to nine eggs of a most beautiful semitransparent white. The nest is very fetid on account of the small bones and scales which are found in it, but without any arrangement; nor can we find those little pellets with which Belon says it plasters its nest, or trace the form imputed to it by Aristotle, who compares it to a gourd, and its substance and texture to those sea balls or lumps of interwoven filaments which cut with difficulty, but when dried become friable.

Our species of kingfisher is not numerous, though they have sometimes nine young ones at a hatch, according to Gesner. Their mode of life proves often fatal; nor do they always with impunity brave the rigours of our winters, for they are sometimes found dead under the ice. They seem unable to exist long without their proper food; for of four young ones which were brought to M. Buffon, in August 1778, two constantly rejected flies, paste, and cheese, and died of hunger in two days; the two others ate a little cheese and some earth worms, but lived only six days. The stomach of the kingfisher is roomy, and, like the birds of prey, it discharges the indigested fragments by the bill.

From the earliest time to the present, a superstitious veneration has been entertained for these birds, in different parts of the world, and many marvellous qualities have been ascribed to them. We learn from Gmelin, that the kingfishers are seen over all Siberia, and the feathers of these birds are employed by the Tartars and the Ostiacs for many superstitious uses. The former pluck them, cast them into water, and carefully preserve such as float; and they pretend, that if with one of these feathers they touch a woman, or even her clothes, she will fall in love with them. The Ostiacs take the skin, the bill, and the claws of this bird, and shut them in a purse; and as long as they preserve this sort of amulet, they believe that they have no ill to fear. "The person," continues Gmelin, "who

taught me this mean of living happy could not forbear shedding tears; he told me that the loss of such a skin that he had made him lose also his wife and his goods. I told him that such a bird could not be so very rare, since a countryman of his had brought me one, with its skin and its feathers: he was much surprised, and said, that if he had the luck to find one, he would give it to no person."

Captain Cook met with kingfishers in the South Sea Islands, which are more than one thousand five hundred leagues distant from any continent. Even here these birds are venerated; and in his second voyage Mr. Foster has introduced the following passage:

"In the afternoon we shot, at Ulietea, some kingfishers. The moment that I had fired last, we met with Oreo and his family, who were walking on the beach with captain Cook. The chief did not observe the bird which I held in my hand, but his daughter wept for the death of her *eatua* or genius, and fled from me when I offered to touch her: her mother and most of the women who accompanied her seemed also concerned for this accident; and the chief, mounting on his canoe, entreated us in a very serious tone to spare the kingfishers and the herons of his island, at the same time granting us permission to kill all the other birds. We tried in vain to discover the cause of this veneration for these two species."

We are gravely told by both Aristotle and Pliny, that the halcyon, or kingfisher, was common in the

seas of Sicily, and that it sat only a few days in the depth of winter, during which time the mariner might sail in perfect security, and therefore they were called halcyon days.

The poets placed this bird in a floating nest, and gave it power over the winds and waves during the time of its incubation.

> Alcyone, comprest,
> Seven days sits brooding in her watery nest,
> A wintry queen; her sire at length is kind,
> Calms every storm, and hushes every wind.
>
> DRYDEN'S OVID.

HUMMING BIRD.

GENERIC CHARACTER.

Bill having a tubulated apex.

Tongue filiform, consisting of two fibres united to form a tube.

SPECIFIC CHARACTER.

TROCHILUS COLUBRIS.	Tr. viridi-aureus, rectricibus nigris; lateralibus tribus ferrugineis apice albis, gula flammea. *Linn. Syst. Nat. Gmel.* 1. p. 492. Upper part of the body green and gold; tail feathers of a purplish brown, the lateral ones (in the female) tipped with white; throat of a ruby colour. Mellisugar Carolinensis, gutture rubro. *Briss. Av.* 3. p. 716. n. 13. t 36. f. 6. RUBY FLY-BIRD. *Buff. Birds,* v. 6. p. 12. RED-THROATED HONEY-SUCKER. *Arct. Zool.* 2. p. 286.
RED-THROATED HUMMING-BIRD.	*Edw. Av.* 1. t. 38. *Lath. Syn.* 1. p. 769. no. 35.

THESE are at once the least and most beautiful of birds. Their plumage is brilliant beyond concep-

tion, and their size so diminutive that the smallest species is not larger than a hazel-nut. To this the red-throated kind is a giant, as it measures three inches and a third in length. The Indians, struck with the elegant and glowing tints of this little creature, called it the sun-beam, others the regenerated; from a belief that it died annually, and was re-animated on the return of spring with the flowers it fed on.

The rapidity of its flight is too great for the eye to follow, and the motion of the wings is imperceptible to the nicest observer. Lightning is scarcely more transient than its flight, nor the glare more bright than its colours. Marcgrave compares the noise of their wings to the whirr of a spinning-wheel; and the quiver of the pinions is so amazingly quick, that when the bird halts in the air, it seems at once deprived of motion and of life. It never feeds but on the wing; and after having rested a few seconds beside one flower, it shoots to the next in search of new sweets, which, like the bee, it extracts from the nectarium of each. It subsists *alone* upon this honeyed liquor, and its tongue is calculated for the purpose of obtaining it. This consists of two hollow fibres, forming a small canal, resembling the proboscis of insects. When this curious little instrument is thrust to the bottom of the flower, it pierces the honey-bag, and the juice flows through the canal. Flowers with the deepest tubes are most admired by the humming bird, and the female balsamine and scarlet monarda are parti-

cular favourites. When these plants are set before a window where humming birds abound, they will surely pay them a visit, and swarm about the flowers, examining every one by thrusting their bills into it; and if by chance some of their brethren have been beforehand and robbed them of the expected sweets, they will pluck the flower from the stalk with a precipitation that marks their rage.

Mr. Pennant observes, that most violent passions animate at times their little bodies. They have often dreadful contests, when numbers happen to dispute possession of the same flower. They will tilt against one another with great fury, as if they meant to transfix their antagonists with their long bills. During the fight they frequently pursue the conquered into the apartments of those houses whose windows are left open, take a turn round the room, as flies do in England, and then suddenly regain the open air. They are not afraid of mankind, unless they are approached very near indeed, when they dart away with the rapidity of lightning.

The nest of this bird is of a piece with the architect; it is an elegant little cup of an hemispherical shape, about an inch in diameter, and half an inch deep. It is constructed by the female, and formed on the outside with lichen, or moss, amidst the thickest foliage of a tree, where, from its diminutive size, it is not easily discovered. The nest is lined on the inside with the down or gossamer collected from the great yellow mullein; but when this cannot be obtained, cotton, flax, or other soft ma-

terials supply the place of it. They lay only two eggs, the size of small peas, and as white as snow. The time of incubation continues during twelve days, at the end of which the young ones appear about the size of a flesh fly.

A companion of father Labat's, who attended him during his mission in America, found a humming bird's nest, and took it home when the young were about fifteen or twenty days old. He placed them in a cage at his chamber window, and was surprised to see the old ones come and feed the brood regularly several times in the day. By these frequent visits they lost their shyness, and without any constraint came at length to live with their young ones; all four of them frequently perched upon their master's finger, and sung with the same freedom as in a state of liberty. They were fed with a fine paste made of wine, biscuit and sugar. "I never beheld any thing more agreeable," says Labat, "than this lovely little family, that had taken possession of my companion's chamber, and that flew out and in just as they thought proper; but were ever attentive to the voice of their master when he called them. In this manner they lived with him for six months; but at a time when he expected to see a new colony formed, he unfortunately forgot to tie up their cage to the ceiling at night, to preserve them from the rats, and he found they were devoured in the morning."

It is very difficult to take this little creature alive: the friend of M. du Pratz, however, contrived to

entrap one, which he had watched while it entered the bell of a convolvulus, and buried itself in the flower for the sake of its sweet. He ran directly to the spot, and having closed the corolla, he cut it from the stalk, and carried off the prisoner: but all his endeavours were ineffectual to prevail on it to eat, and it died in a few days. General Davies was more successful; since, from the information he gave Dr. Latham, we find that he kept these birds alive for four months by the following method: He made an exact representation of some of the tubular flowers, with paper fastened round a tobacco-pipe, and painted them of a proper colour; these were placed in the order of nature, in the cage in which the little creatures were confined; the bottoms of the tubes were filled with a mixture of brown sugar and water as often as emptied, and he had the pleasure of seeing them perform every action; for they soon grew familiar, and took their nourishment in the same manner as when ranging at large, though close under the eye.

The Indians of Mexico and Peru were skilled in making pictures of the feathers of these birds, with which they decorated their idols and their temples, before the cruel Spaniards depressed their spirit, and robbed them of their wealth.

GALLINACEOUS BIRDS.

OSTRICH.

GENERIC CHARACTER.

Bill somewhat arched.
Nostrils oval.
Wings short.
Toes two; exterior one very short.

SPECIFIC CHARACTER.

Struthio Camelus.	S. pedibus didactylis. *Linn. Syst. Nat. Gmel.* 1. p. 726.
	Two toes on each foot.
	Struthio. *Briss. Av.* 5. p. 3. pl. 1. f. 1.
Ostrich. . . .	*Buff. Birds,* v. 1. p. 323. pl. 29. *Alb. Av.* 3. t. 53. *Will. Orn.* p. 149. pl. 25. *Lath. Syn.* v. 3. p. 6. no. 1. t. 71.

If the ostrich was not endowed with a very hardy constitution, it would often find it difficult to exist in the vast deserts of Africa, where the surface of the earth is but thinly clad with vegetables, and where the rain seldom comes to refresh it. Provided by nature with a stomach capable of digest-

OSTRICH.

Designed by W. Daniell.

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ing almost any thing, and with an appetite to which no food comes amiss, the ostrich finds a supply in those parched and barren districts, that seem so little calculated for the support of animal life.

Young ostriches are entirely covered with feathers during the first year. These are of an ash gray colour, and are soon shed by the bird; but never grow again on the head, on the top of the neck, on the thighs, on the sides, and below the wings. The other parts of the body are provided with a beautiful plumage of black and white feathers. The longest and most esteemed of all are those at the extremity of the tail, and of the wings. The value which these feathers bear in Europe we should naturally suppose would make them an object worthy the attention of the settlers in the interior of Africa; yet Mr. Barrow assures us that the annual exportation of them from that country amounts to a mere trifle, the boors preferring the immediate benefit of the eggs, which affords them a pleasant nourishment, to the encouragement of a future source of profit. So little indeed is the advantage they derive from this article, that the feathers are generally given as presents to the butchers' servants who purchase cattle and sheep of the farmers for the Cape market. The usual height of an ostrich is about seven feet from the top of the head to the ground, but not more than four from the back, therefore the neck and head will measure three feet. The wings are very short in proportion to the size of the bird, and

are furnished at the end with a kind of spur, about an inch long, of a horny substance. Each wing has two of these, the largest of which is at the end, and the other a foot lower. The thighs are large and muscular, and the legs and feet covered before with scales.

We learn from Mr. Barrow, that when the ostriches are seen scouring the plains, and waving their black and white plumes in the wind, it is a signal to the Hottentots that their nests are not far distant, especially if they wheel round the place from whence they started up; but when they have no nest, they make off immediately on being disturbed, with their wing-feathers close to the body. "The ostrich," says this gentleman, "is one of the very few polygamous birds that are found in a state of nature. The male, distinguished by its glossy black feathers from the dusky gray female, is generally seen in company with two or three, and frequently as many as five of the latter. Those females lay their eggs in one nest, to the number of ten or twelve each, which they hatch all together, the male taking his turn of sitting on them among the rest. Between sixty and seventy eggs are said to have been found in one nest; and if incubation has begun, a few are most commonly lying round the sides of the hole, having been thrown out by the birds on finding the nest to contain more than they could conveniently cover. The time of incubation is six weeks. From its not being known that the

ostrich is polygamous, an error respecting this bird has slipt into the *Systema Naturæ*, where it is said that one female lays fifty eggs."

Subsequent travellers have contradicted the report of Dr. Shaw, that ostriches have a very little share of natural affection; that upon the least noise or most trivial occasion they forsake their eggs, and never return again to the nest. On the contrary, the ostrich is exceedingly attached to her young, and watches her eggs with an assiduity which is not exceeded by any bird. In the burning climate of Africa, where there is no fear of the eggs being chilled by the weather, the female may indeed leave her nest for a time; but in consequence of her instinctive knowledge she always returns in the evening, and carefully broods over them during the night. Nor is it true that they forsake their young as soon as they are hatched, notwithstanding the information which Dr. Shaw collected from the Arabs, that they often met a few of the little ones, no bigger than full-grown pullets, straggling about distressed, and making a mournful noise for their mother. The young ones, on the contrary, are not even able to walk for several days after they are hatched, but are regularly attended by their parents, who supply them with grass, and even make use of artifice to conceal them from danger. As Thunberg one morning rode past a place where a hen ostrich sat upon her nest, the bird sprung up and pursued him, with a view to prevent his noticing her young ones or her eggs. Every time he

turned his horse, she retreated ten or twelve paces; but as soon as he rode on she pursued him again.

The eggs of these creatures are considered as a great delicacy. The Hottentots, while tending the cattle, frequently find their nests in the sands; and we are told that those people never use their hands to take away the eggs, lest the ostriches should discover them by the scent, and quit the nest; but rake them out with a long stick, as fast as the birds lay them. One egg is sufficient for several persons, and is said to be particularly good when eaten with a large quantity of butter. There are various ways of dressing them, but that made use of by the Hottentots is considered the best: it is simply to bury them in hot ashes, and through a small hole made in the upper end, to stir the contents continually round till they acquire the consistence of an omlet. When prepared in this manner, Mr. Barrow found them an excellent repast in the course of his long journeys over the wilds of Africa. Small oval-shaped pebbles, about the size of a marrowfat pea, of a pale yellow colour and exceeding hard, are sometimes found within these eggs.

The celebrated French traveller Vaillant, during his African excursion, sprung an ostrich from her nest, and found in it eleven warm eggs, and four others at a little distance. His attendants informed him that the bird always placed a certain number of eggs near the nest, which she never sat upon, but designed for nourishment for her young when first excluded from the shell. They at the same

time assured him, that they were perfectly good. At another time, the same gentleman found a female ostrich on a nest which contained thirty-two eggs; twelve were arranged at a little distance, each in a separate cavity formed for it. He remained near the spot some time, and saw three other females come, and alternately seat themselves in the nest, each sitting for about a quarter of an hour, and then giving place to another, who, while waiting, sat close by the side of her whom she was to succeed.

The voracity of the ostrich is almost incredible: he will swallow leather, hair, iron, stones, or any thing that is given him. Whether this proceeds from the same necessity which the smaller birds are under of picking up gravel to assist digestion, or from a want of distinguishing by the taste soluble substances from those that are insoluble, certain it is, that in the ostrich dissected by Ranby there appeared such a quantity of heterogeneous substances, that it was wonderful how any animal could digest them. Another anatomist, Vallisnieri, found the stomach filled with a mixture of grass, nuts, cords, stones, glass, brass, copper, iron, tin, lead, and wood; a piece of stone was found among the rest that weighed more than a pound. He saw one of these animals that was killed by devouring a quantity of quick-lime. We can in no way account for this wonderful propensity in the ostrich, unless it is owing to some uneasiness about the stomach, which requires it to be constantly supplied, and nu-

tritious substances not occurring in sufficient abundance, it is obliged to have recourse to whatever offers to fill up the void.

We shall give the opinion of M. Perrault upon this curious subject, who, having found seventy doubloons in the stomach of one of these animals, observed, that most of them were worn down, and reduced to three-fourths of their prominence. He conceived that this was occasioned by their mutual friction and the comminution of pebbles, rather than by the action of an acid; since some of these doubloons were much corroded on the convex surface, which was most exposed to the attrition, and yet not in the least affected on the concave side. He therefore concluded, that in these birds the solution of the food is not performed merely by subtle and penetrating juices, but is effected by the organic action of the stomach, which compresses its aliments, and agitates them incessantly with those hard bodies which they instinctively swallow. And because the contents of the stomach were tinged with green, he inferred that the copper was actually dissolved in it, not by any particular solvent, nor by the powers of digestion, but in a similar manner to what would take place if that metal were ground with some acid or saline liquor. He adds, that copper acts as a real poison in the stomach of the ostrich, and that all those who swallowed much of it soon died.

When Dr. Shaw was abroad, he had several opportunities of observing the manners of the ostrich.

He was much diverted with the strut it assumed, when in the heat of the day it passed along the sunny side of the house, at the same time fanning itself with its expanded wings, and seeming at every turn to admire and be in love with its shadow. He adds, that although these birds appeared tame and tractable to such persons of the family as were familiar to them, yet they were often very fierce to strangers, especially the poorer sort, whom they would attempt to run down, and injure with their feet. They are capable of striking with great force; and the inward claw being exceedingly strong, pointed, and angular, was the occasion of a melancholy event to which the Doctor was witness: for, during his stay, an unfortunate person had his belly ripped open by a stroke from one of these animals.

Where ostriches abound they frequently do great damage to the farmers, by coming in flocks into their fields and destroying the ears of wheat, which they do so completely as to leave nothing but the bare straw behind; and they sometimes commit the greatest devastation before they are discovered. The body of the bird is not higher than the corn, and its long neck is bent down while it devours the ears, so that it cannot well be seen at a distance; but on the least noise it rears its head, and can thus foresee its danger in time to make its escape, which it generally contrives to do before the farmer can get within gun-shot.

Professor Thunberg says, It is impossible to over-

take an ostrich with the swiftest horse when the wind is in its favour, as its expanded wings so much assist its flight, that, unless it receives a wound so as to disable its wings, it will be in vain to pursue the bird. To follow the chase with success, the weather should be both warm and calm; and it is then the Arabian hunters mount their fleetest horses and seek the bird in its native plains. Perhaps, of all the varieties of the chase, this, though the most laborious, is yet the most entertaining. As soon as the hunter comes within sight of his prey, he approaches with a gentle gallop, so as to keep the ostrich always in sight without driving it to the mountains. The animal, either insensible of its danger, or sure of escaping, begins to run at first very gently, with the wing plumes waving in the air; but as the hunters draw near, it doubles its speed, and would very soon be out of sight if the silly creature continued in a direct line; instead of which, it wheels about in circles, while the hunters relieve each other, meet it at unexpected turns, and thus keep it employed; till at last, quite spent with fatigue, and finding all power of escape impossible, the ostrich endeavours to hide itself from those enemies it cannot avoid, by covering its head in the sand.

When the Arabians have killed an ostrich they open its throat, and make a ligature below the incision, after which they shake the bird with violence and roll it on the ground; then removing

the ligature, there flows from the wound a mixture of fat and blood, which those people consider as one of their greatest dainties.

While Mr. Adanson was residing at the factory of Podor, on the bank of the river Niger, he amused himself by placing two little blacks on the back of a tame ostrich. This creature, together with a small one of the same species, had been in the factory about two years, and though young were nearly at their full size. The bird no sooner felt the weight of the negroes than it ran as fast as possible several times round the village, and it was found impossible to stop it otherwise than by obstructing the passage. Pleased with the sight, he resolved to try the strength of the small one, upon which he mounted a full grown negro, while two others rode the largest. "The burthen," says our author, "did not seem too much for them; at first they went at a sharp trot; but when they became heated, they expanded their wings and moved with such swiftness that they scarcely seemed to touch the ground."

In the thirty-ninth chapter of the book of Job, the author beautifully describes the ostrich, "which leaveth her eggs in the earth, and warmeth them in the dust; and forgetteth that the foot may crush them, or that the wild beast may break them. She is hardened against her young ones as though they were not hers: her labour is in vain without fear; because God has deprived her of wisdom, neither hath he imparted to her understanding."

RUFFED GROUS.

GENERIC CHARACTER.

Bill short and arched.
A naked spot near the eyes.
Two toes on each foot connected to the first joint by a thin membrane.

SPECIFIC CHARACTER.

TETRAO UMBELLUS.	T. cervicale umbone extante. *Linn. Syst. Nat. Gmel.* 1. p. 752. With a ruff round its neck. RUFFED HEATHCOCK. *Edw. Glean.* pl. 248. ATTAGEN PENSYLVANIÆ. *Briss. Av.* 1. p. 214. no. 11.
RUFFED GROUS.	*Buff. Birds,* 2. p. 246. *Arct. Zool.* 2. p. 301. no. 179. *Lath. Syn.* 2. p. 738. no. 8. RUFFED HEATH-COCK. *Phil. Trans.* v. 48. p. 499. t. 15. *Edw. Glean.* t. 248.

THERE is something in the natural history of most animals which is calculated to excite our curiosity, if we will only give ourselves the trouble to find it out. This is certainly true with respect to the ruffed grous, which inhabit North America, from Hudson's Bay to the Carolinas. These birds are noted for what the hunters call their *thumping*; a

remarkable noise made by clapping their wings forcibly against their bodies. Bartram tells us that they generally stand upon an old fallen tree that has long lain upon the ground, and begin their strokes gradually, at intervals of about two seconds of time, and repeat them quicker and quicker, till they make a noise like distant thunder. This continues, from the beginning, about a minute; after which it ceases, and all is quiet for a little while; when it begins again. The sound is heard near half a mile; by which means they are discovered by the hunters, and many of them killed. Mr. Bartram shot several in this position, but never saw them *thump*, as they constantly left off when he appeared.

Mr. Brooke observes that the ruffed grous breeds in all parts of Maryland, except some of the countries on the eastern shore. They lay their eggs in nests made in the leaves, either by the side of fallen trees or the roots of standing ones. The time of incubation is in the spring, and they lay from twelve to sixteen eggs. Mr. Brooke says, that when a boy he has often found their nests, and has endeavoured to take the old grous, but never could succeed: her natural attachment to her eggs would induce her to remain till he almost put his hand upon her before she would quit the nest; and then, by fluttering just before him for a hundred paces or more, and constantly giving him hopes of catching her, she has at length enticed him completely from the eggs. The young are supposed to live at first

on ants and small worms: when they are a few days old they hide themselves so artfully among the leaves, that it is difficult to find them. Though the ruffed grous hatches many young at a time, and often sits twice a-year, the great number and variety of hawks in Maryland feeding on them prevents their increasing fast. They live on the various fruits and grain of the country, but are more particularly fond of the ivy-berry.

This very singular property in the ruffed grous is described by the baron la Hontan, in his Voyage to North America, though he does not appear to have known the proper name of the bird. He has given his account in the following words:

"I went in company with some Canadese on purpose to see that fowl flap with its wings: believe me, this sight is one of the greatest curiosities in the world; for their flapping makes a noise much like a drum, for about the space of a minute; then the noise ceases for half a quarter of an hour, after which it begins again. By this noise we were directed to the place where the unfortunate moor-hens sat, and found them upon rotten mossy trees. By flapping one wing against the other they mean to call their mates; and the humming noise that ensues thereupon may be heard half a quarter of a league. This they do in the months of April, May, September, and October; and, which is very remarkable, the moor-hen never flaps in this manner but upon one tree. It begins at break of day, and gives over at nine o'clock in the morning, till about an

hour before sunset, then it flutters again, and continues so to do till night."

This species of grous has a great ruff on the hind part of the neck, which it can raise or depress at pleasure. The upper part of the body is a mixture of brown, ferruginous, and black; some of the tail feathers are marked with heart-shaped spots of white; the chin, as well as the breast and belly, is white, barred with cinereous brown. The tail, which is expansible like a fan, and most elegantly barred with narrow undulated lines of black, is in some of a cinereous colour, and in others orange; the end in all is tipped with white. The legs are covered with feathers to the feet; the toes are naked and pectinated.

PASSERINE BIRDS.

PASSENGER PIGEON.

GENERIC CHARACTER.

Bill soft and straight, with a little inclination downwards at the tip.
Nostrils oblong; lodged in a tuberous naked skin.
Toes divided to their origin.

SPECIFIC CHARACTER.

COLUMBA MIGRATORIA.	C. orbitis denudatis sanguineis, pectore rufo. *Linn. Syst. Nat. Gmel.* 1. p. 789. The orbits bare and blood-coloured; breast reddish.
	COLUMBA AMERICANA. *Kalm. It.* 2. p. 527.
	Oenas Americana. *Briss. Av.* 1. p. 100. n. 12.
PASSENGER PIGEON. .	*Arct. Zool.* 2. p. 322. no. 187. pl. 14. *Lath. Syn.* 2. p. 661. no. 61.

NONE of the numerous tribe of pigeons deserve our particular attention more than the passenger, which is peculiar to North America. These birds are migratory, and visit the provinces in winter in

greater or lesser numbers, according to the severity or mildness of the season. We are assured that they swarm during a rigorous winter in immense multitudes, and wherever they alight the ground is immediately cleared of every esculent fruit. After they have devoured all, they form themselves into a great perpendicular column, and, flying among the branches of the oak trees, beat down the acorns with their wings, and then alight to pick them up. They are said to do great damage to the corn-fields in Canada, by devouring the ear, before they begin to migrate to the south.

To mention the multitudes of these birds, which appear at particular times, would seem incredible, if it was not supported upon so good authority as Catesby. We learn from him that their immense flocks literally intercept the sun for a considerable space; that as soon as one flock is gone by another succeeds; that each flock is a quarter of an hour in passing; and that this continues, in some seasons, for three days without any intermission.

Mr. Pennant received the following information respecting these curious birds from the late Mr. Ashton Blackburne, whose own observations, added to those of his friends, we shall take the liberty of transcribing from The Arctic Zoology.

"I think," says Mr. Blackburne, "this is as remarkable a bird as any in America; they are in vast numbers in all parts, and have been of great service at particular times to our garrisons, in supplying

them with fresh meat, especially at the out-posts. A friend told me, that in the year in which Quebec was taken the whole army was supplied with them, if they chose it. The way was this: every man took his club (for they were forbid to use their fire-locks,) when they *flew*, as it was termed, in such quantities, that each person could kill as many as he wanted. They in general begin to fly soon after day-break, and continue till nine or ten o'clock; and again about three in the afternoon, and continue till five or six; but, what is very remarkable, they always fly westerly. The times of flying here are in the spring, about the latter end of February or the beginning of March, and continue every day for eight or ten days; and again in the fall, when they begin the latter end of July, or the beginning of August. They catch vast quantities of them in clap-nets wish stale pigeons. I have seen them brought to this market by sacks full. People in general are very fond of them; and I have heard many say they think them as good as the common blue pigeon; but I cannot agree with them by any means. They taste more like our queest, or wild pigeon; but are better meat. They have another way of killing them; they make a hut of boughs of trees, and fix stale pigeons on the ground, at a small distance from the hut. They plant poles for the wild pigeons to light on when they come a-salting, as they term it, which they do every morning in the season, repairing to the marshes near the sea

side; then the persons in the hut pull the stale pigeons, when the birds will alight in vast numbers on the poles, and great multitudes are shot. Sir William Johnson told me, that he killed at one shot, with a blunderbuss, a hundred and twenty or thirty. Some years past they have not been in such plenty as they used to be. This spring I saw them fly one morning, as I thought in great abundance; but every body was amazed how few there were, and wondered at the reason.

"I must remark one very singular fact; that, notwithstanding the whole people of the town go out a-pigeoning, as they call it, they will not on some days kill a single hen bird; and on the very next day not a single cock, and yet both sexes always fly westerly; and when this is the case, the people are always assured that there will be great plenty of them that season. I have been at Niagara when the sentinel has given the word that the pigeons were flying; and the whole garrison were ready to run over one another, so eager were they to get fresh meat."

This account is strengthened by others, who tell us that their numbers exceed belief; that in Pennsylvania the inhabitants kill them from their balconies and the tops of their houses, and that even the limbs of stout oaks are often broken off by their weight when they perch on them in crowds in order to roost. They are taken, when settled for the night, by a very easy process. A large vessel filled with burning sulphur is placed under the trees, and

the fumes which arise from it so stifle the birds that they are said to fall senseless to the ground in perfect showers. The account which Josselyn gives of their numbers is really surprising; he assures us, that in 1638, when New England was not in a state of population, he observed flocks of them moving, at Michaelmas, to the southward, which extended four or five miles, and were so thick that they literally intercepted the light of the sun. He further adds, that when they return in spring, they build a chain of nests from tree to tree, which may be traced in the woods for many miles.

This species of pigeon is thus described by Mr. Pennant: It has a black bill and red irides; head, and hind part, and sides of the neck, of a slaty blue; on each of the last a large shining golden spot; coverts of the wings of a dark blueish gray, marked with a few black spots; quill feathers brown; tail of a great length and cuneiform; the middle feathers dusky gray, the next paler, the outmost white. Weight nine ounces.

WATER OUZEL.

GENERIC CHARACTER.

Bill awl-shaped.
Nostrils marginated.
Tongue acute.

SPECIFIC CHARACTER.

STERNUS CINCLUS. S. niger, pectore albo. *Linn. Syst. Nat. Gmel.* 1. p. 803.
Black, with a white breast.
MERULA AQUATICA. *Briss. Av.* 5. p. 252. no. 19.
WATER OUZEL. . *Buff. Birds,* 8. p.126. pl. 203. *Brit. Zool.* 1. p. 312. no. 111. *Arct. Zool.* 2. p. 332. β. *Will. Orn.* p. 149. t. 24. *Lath. Syn.* 2. p. 48. no. 50.

AMONG the many birds whose peculiar manners we have described, there is none more deserving of notice than the water ouzel. While others either confine themselves entirely to the air, or occasionally float upon the water, this bird, as if the two elements where equally indifferent to it, walks with the same ease and deliberation at the bottom of a

river as it does upon a dry bank. M. Hebert communicated the following account of this extraordinary habit to the count de Buffon: "I lay ambushed on the verge of the lake Nantua, in a hut formed of pine branches and snow, where I patiently waited till a boat, which was rowing on the lake, should drive some wild-ducks to the water's edge. I observed without being perceived: before me was a small inlet, the bottom of which gently shelved, and might be about two or three feet deep in the middle. A water ouzel stopped here more than an hour, and I had full leisure to view its manœuvres. It entered into the water, disappeared, and again emerged on the other side of the inlet, which it thus repeatedly forded. It traversed the whole of the bottom, and seemed not to have changed its element, and discovered no hesitation or reluctance in the immersion. However, I perceived several times, that as often as it waded deeper than the knee, it displayed its wings, and allowed them to hang to the ground. I remarked, too, that when I could discern it at the bottom of the water, it appeared enveloped with air, which gave it a brilliant surface, like some sorts of beetles, which are always in water, inclosed with a bubble of air. Its view in dropping its wings on entering the water might be to confine this air; it was certainly never without some, and it seemed to quiver. These singular habits of the water ouzel were unknown to all the sportsmen whom I have talked with; and perhaps without the accident of the snow-hut, I

should have ever been ignorant of them; but I can aver that the bird came to my very feet, and, that I might observe it, I did not kill it."

Perhaps there is not to be found in the extensive field of Nature a more curious fact than the foregoing. We may easily suppose that a bird whose habits induce it to explore the deep, should choose a situation where the water is clear and the bottom free from mud; and this, indeed, is the case; as the water ouzel is only found in mountainous countries, at sources of rivers, and in the torrents which pour down from the rocks. It is found in Westmoreland, and likewise inhabits the mountainous parts of France and Switzerland. The female lays four or five eggs, and is careful to conceal her nest.

GROSBEAK.

GENERIC CHARACTER.

Bill thick, convex above and below; lower mandible bent on one side.
Nostrils small and round.
Tongue entire.

SPECIFIC CHARACTER.

LOXIA ABYSSINICA. . L. flavescens, vertice temporibus gutture et pectore nigris, humeris nigricantibus, remigibus rectricibusque fuscis, margine flavis. *Linn. Syst. Nat. Gmel.* 1. p. 860.

Body yellow; the top and sides of the head, the throat and the breast are black: scapular feathers blackish: wing and tail feathers brown with a yellow margin.

ABYSSINIAN GROSBEAK. *Buff. Birds*, 3. p. 429. *Lath. Syn.* 2. p. 131. n. 31.

MOST of the loxia genus are famous for their ingenuity in contriving their habitations. Some, as we have already seen, live together in large societies, and build their nests under one common roof in the body of a tree; while others, who are

less sociable, suspend their dwellings from the branches: among the latter, the Abyssinian grosbeak is one of the most skilful, and proves himself an architect of no inferior merit. The nest which this bird constructs is nearly of a pyramidal shape, and he is always careful to suspend it over the surface of water, from the end of a small branch; the entry is in the side, and generally faces the east; a partition of half its height divides the body of the nest into two compartments; the bird enters the first, and creeping along descends into the second, chamber, which is designed for the eggs. This double construction effectually secures the brood against the rain, which in Abyssinia pours down in torrents, and lasts several months. The foresight of the grosbeak is equally admirable in the manner of suspending his nest, which renders it completely inaccessible to both the mischievous and the noxious animals with which Abyssinia abounds.

We shall, in this place, notice another species, the *loxia Bengalensis*, Linn. for the sake of the interesting account which the late sir William Jones has given of its manners.

"This bird," says sir William, "is exceedingly common in Hindostan: he is astonishingly sensible, faithful, and docile; never voluntarily deserting the place where his young are hatched, but not averse, like most other birds, to the society of mankind, and easily taught to perch on the hand of his master. In a state of nature he generally builds

his nest on the highest tree that he can find, especially on the palmyra, or on the Indian fig-tree; and he prefers that which happens to overhang a well or a rivulet: he makes it of grass, which he weaves like cloth, and shapes like a large bottle, suspending it firmly on the branches, but so as to rock with the wind, and placing it with its entrance downwards to secure it from birds of prey. His nest usually consists of two or three chambers; and it is popularly believed that he lights them with fire-flies, which he is said to catch alive at night, and confine with moist clay or with cow-dung. That such flies are often found in his nest, where pieces of cow-dung are also stuck, is indubitable; but as their light could be of little use to him, it seems probable that he only feeds on them.

"He may be taught with ease to fetch a piece of paper or any small thing that his master points out to him. It is an attested fact, that if a ring be dropped into a deep well, and a signal given to him, he will fly down with amazing celerity, catch the ring before it touches the water, and bring it up to his master with apparent exultation; and it is confidently asserted, that if a house or any other place be shown to him once or twice, he will carry a note thither immediately, on a proper signal being made. One instance of his docility I can myself mention with confidence, having often been an eye-witness to it. The young Hindoo women at Benares, and in other places, wear very thin plates

of gold, called *ticas*, slightly fixed by way of ornament, between their eye-brows; and when they pass through the streets it is not uncommon for the youthful libertines, who amuse themselves with training these birds, to give them a signal which they understand, and send them to pluck the pieces of gold from the foreheads of their mistresses, which they bring in triumph to the lovers."

WARBLERS.

GENERIC CHARACTER.

Bill awl-shaped.
Nostrils small; obovate.

NIGHTINGALE.

SPECIFIC CHARACTER.

Motacilla Luscinia.	M. rufo-cinerea, armillis cinereis. *Linn. Syst. Nat. Gmel.* 1. p. 950. Body reddish ash-colour, wing feathers lighter. Sylvia Luscinia. *Scop. Ann.* 1. n. 227.
Nightingale. . .	*Buff. Birds*, v. 5. p. 78. pl. 120. n. 1. *Penn. Brit. Zool.* 1. n. 145. *Will. Orn.* p. 270. t. 41. *Alb. Av.* 3. t. 53. *Lath. Syn.* 2. p. 408. no. 1. *Bew. Birds*, 1. p. 199.

Sweet bird, that shunn'st the noise of folly,
Most musical, most melancholy!
Thee, chauntress, oft the woods among
I woo, to hear thy even song. Il' Penseroso.

None of the different kinds of birds prove more agreeable companions to man, than those which enjoy the gift of harmony; and there is not one among

them that ranks so high for his exquisite melody as the nightingale. We must confess, however, that he owes something to the stillness of the hour when he executes his plaintive strains; for after having heard a full chorus celebrate the Author of Nature, and proclaim the bounties of Him who sustains them, it is a delightful novelty, in the evening, to hear the nightingale begin to sing by himself, and continue his notes till the night be far advanced. This superiority over the rest of birds, has made him justly the favourite of the poets; and Milton, in describing the approach of evening, has not forgotten his nocturnal vigils:

> " Silence accompanied; for beast and bird—
> They to their grassy couch, these to their nests—
> Were slunk, all but the wakeful nightingale,
> She all night long her amorous descant sung.

The good old Walton too, whose favourite diversion induced him to spend so many hours by the side of the brook, has acknowledged the pleasure which he frequently received from this musical bird, in a pious ejaculation to his Creator.

The nightingale is very solitary, and seems so much attached to the same situation that he generally continues in it during the season. This circumstance did not escape the observation of our Shakspeare.

> *Jul.* Wilt thou be gone? it is not yet near day;
> It was the nightingale, and not the lark,
> That pierced the fearful hollow of thine ear;
> *Nightly she sings on yon pomegranate tree:*
> Believe me, love, it was the nightingale.

This attachment of theirs to the same spot, was the origin of a contrivance to settle nightingales in places which they never visited: The brood are caught with the parent birds, and conveyed to a situation which resembles their former haunt: the cock and hen are placed in two cages near the nest of young, and the cages are artfully opened while the person remains concealed: the parents run to the cries of their nestlings, and foster and continue to educate them; it is even said they will return to the same place the next year.

For the following description of the nest of these little warblers, and of their careful attention to their young, we are indebted to the learned Count de Buffon:

"They begin to build their nest about the end of April, or the opening of May. The materials are leaves, rushes, stalks of coarse grass; and the inside is lined with small fibres and roots, horse-hair, and a sort of bur. They are placed in a favourable aspect, turned somewhat to the east, near water, and commonly on the lowest branches of shrubs, as gooseberries, white-thorns, sloes, elm-hedges, &c. or in a tuft of grass, and even on the ground under bushes. Hence their eggs and their young, and sometimes the mother, are occasionally devoured by dogs, foxes, pole-cats, weasels, adders, &c.

"In our climate the female usually lays five eggs, of an uniform greenish brown, except that the brown predominates at the obtuse end and the green at the acute. She hatches alone, and never leaves her station but for food, and then only in

the evening, and when hard pressed with hunger: during her absence the male seems to cast an eye on the nest. In eighteen or twenty days the young begin to burst their shells, and the number of the cock birds is generally double that of the hens. And hence, when in April a cock is caught, the hen soon finds another mate, the loss of which is supplied by a third, and so on; insomuch that the successive seizure of three or four males has little effect on the multiplication of the brood. The hen disgorges the food for the young, as in the canaries, and the cock assists. He now ceases to warble, and is totally absorbed in the concerns of his family; and even during incubation, it is said, he seldom sings near the nest, lest he discover it; but if a person approach it, his paternal solicitude drowns the suggestions of prudence, and his shrieks only increase the danger. In less than a fortnight the young are fledged; and at this time we ought to remove those intended to be trained. After they are flown the parents make a second hatch, and then a third; but the last fails if the cold sets in early. In hot countries they breed even four times annually; but the late hatches are always more scanty."

It has been remarked that birds of gay and brilliant colours have generally disagreeable voices, while those of a more sober tint are frequently melodious: thus has Nature made an equal distribution of her favours, since both have their attractions. The plumage of the nightingale is very

inferior to his warble, being on the upper side of the body of a brown inclining to rusty; the throat, breast and belly are of a light glossy ash-colour; the quill feathers are of a dull reddish brown; the eyes are remarkably large and piercing; the legs are brown, and also the feet, but with a shade of flesh-colour. The length of the bird is about six inches.

About the end of August the nightingales migrate into other countries, and return to us in April, when they almost immediately begin to sing, and continue in voice till the end of June. It is singular that confined in a cage they sing for nine or ten months, while those in a wild state only favour us with their notes for as many weeks. In Gascony, it is said, they are fatted for the table, and considered as most delicious food.

TAYLOR BIRD.

SPECIFIC CHARACTER.

MOTACILLA SUTORIA. M. tota flava minima. *Linn. Syst. Nat. Gmel.* 1. p. 997.
A very small species entirely yellow.
TAYLOR BIRD. . . *Penn. Ind. Zool.* pl. 8. *Lath. Syn.* 2. p. 515. no. 49.

THE nest of this bird is one among the many curiosities which are daily occurring to the naturalist. It is composed of two leaves, sewed together in a very nice manner by the little taylor, whose bill serves him for a needle. He generally chooses a dead leaf which he picks up from the ground; and flying with it to the extremity of a branch, attaches it to a living one, making use of slender fibres instead of thread. The nest is in the form of a pouch, and open at top: a lining of gossamer, or soft vegetable down, together with a few feathers, completes the operation. Thus is constructed the most simple nest in Nature, in which the little family are brought up without the fear of being interrupted by any one. The nest and the birds are together so light, that the leaf attached to the end of the most slender twig will be strong enough for

their purpose: here it is they fix their habitation, and, thus suspended, they may almost bid defiance to every invader but the wind.

The taylor bird inhabits India; and has only been noticed on account of its singular nest, a figure of which, with a very short description of the species, is given by Mr. Pennant in the Indian Zoology.

PENDULINE TITMOUSE.

GENERIC CHARACTER.

Bill strong, short, sharp-pointed and somewhat compressed; the base covered with bristles.
Tongue truncated, and terminated with bristles.

SPECIFIC CHARACTER.

PARUS PENDULINUS. . P. capite subferrugineo, fascia oculari nigra, remigibus rectricibusque fuscis, margine utroque ferrugineo. *Linn. Syst. Nat. Gmel.* 1. p. 1014.
Head somewhat ferruginous, with a black stripe across the eyes: quills of the wings and of the tail brown; both margins ferruginous.
Parus polonicus sive pendulinus. *Briss. Av.* 3. p. 565. no. 11. pl. 29. f. 2.
MOUNTAIN TITMOUSE. *Alb. Av.* 3. pl. 57.
PENDULINE TITMOUSE. *Buff. Birds*, 5. p. 420. *Lath. Syn.* 2. p. 547. no. 16.

THIS little creature, whose total length does not exceed four inches and half, is a first-rate architect, and possesses a degree of ingenuity and contrivance which is not surpassed by any of the feathered

tribe. All its skill is directed to the formation of its nest; and this curious structure is so satisfactorily described by M. de Buffon, that we shall beg leave to avail ourselves of his account.

" The most curious fact in the history of these birds," says the Count, " is the exquisite art displayed in the construction of their nest. They employ the light down found on the buds of the willow, the poplar, the aspen, the juncago; in thistles, dandelions, flea-banes, cats-tails, &c. With their bill they entwine this filamentous substance, and form a thick close web, almost like cloth: this they fortify externally with fibres and small roots, which penetrate into the texture, and in some measure form the basis of the nest. They line the inside with the same down, but not woven, that their young may lie soft: they shut it above to confine the warmth, and they suspend it with hemp, with nettles, &c. from the cleft of a small pliant branch, over running water, that it may rock more gently, assisted by the spring of the branch. In this situation the brood are well supplied with insects, which constitute their chief food; and they are protected from the rats, the lizards, the adders, and other reptiles, which are always the most dangerous: and I am convinced that their conduct really proceeds from foresight; for they are naturally crafty; and, according to Monti and Titius, they can never be caught in snares; as the same circumstance has been remarked in the bonanas and cassigues of the New World, in the grosbeaks of

Abyssinia, and in other birds which hang their nests from the end of a branch. That of the penduline titmouse resembles sometimes a bag, sometimes a shut purse, sometimes a flattened bagpipe, &c. The aperture is made in the side, and almost always turned towards the water, and placed sometimes higher, sometimes lower; it is nearly round, and only an inch and a half in diameter, or even less, and commonly surrounded by a brim more or less protuberant, though this is sometimes wanting. The female lays only four or five eggs, which falls much short of the ordinary fecundity of the titmice; but in its port, its voice, its bill, and in the principal attributes, the penduline resembles the others. These eggs are as white as snow, the shell extremely thin, and they are almost transparent. The bird has generally two hatches annually; the first in April or May, and the second in the month of August. There is little probability that it makes a third.

"These nests of the penduline titmouse are seen in the fens near Bologna, in those of Tuscany, on the banks of Thrasymene; and are exactly the same with what occur in Lithuania, Volhinia, Poland, and Germany. The peasants regard them with superstitious veneration: one of these nests is suspended near the door of each cottage, and the possessors hold it as a protector from thunder, and its little architect as a sacred bird. We might almost regret that Nature is not more

sparing of her wonders; for every extraordinary appearance is a source of new errors."

These birds inhabit the northern parts of Europe as far as Siberia; but according to Gmelin they are rare in that country. They are generally found in marshy situations, where they hide themselves among the bulrushes; therefore several of the cantons of Poland are particularly adapted for the residence of these titmice, as they abound in marshes which produce the requisite aquatic plants for the construction of their nests.

SWALLOW.

GENERIC CHARACTER.

Bill short, awl-shaped, weak.
Mouth very wide.
Tongue short; smooth; cleft.
Wings long.
Legs short and weak.

SPECIFIC CHARACTER.

HIRUNDO RUSTICA. H. rectricibus, exceptis duabus intermediis, macula alba notatis. *Linn. Syst. Nat. Gmel.* 1. p. 1015.

Tail feathers, except the two middle ones, spotted with white.

HIRUNDO DOMESTICA. *Briss. Av.* 2. p. 486.

COMMON SWALLOW. *Buff. Birds*, v. 6. p. 493. pl. 161. f. 1. *Will. Orn.* t. 39. *Alb. Av.* 1. t. 45. *Lath. Syn.* 2. p. 561. no. 1. *Penn. Brit. Zool.* 1. p. 398. pl. 58. *Bew. Birds*, p. 252.

THESE birds, about whom such contradictory opinions have been entertained, make their appearance in this country about the twelfth of April, and leave us for their distant winter quarters about the end of September; though they sometimes continue till the

next month, and Mr. Markwick observes that he has seen them as late in the year as the sixteenth of November; but it was only a single bird or two, the main body having disappeared long before that time.

As they always visit us in the spring, within twenty days of the same time, they sometimes suffer from the uncertainty of this climate, and have been seen gliding through thick flakes of falling snow. Buffon says that the year 1740 was fatal to many of them; they gathered in great numbers about a brook which skirted a terrace then belonging to Mr. Hebert, where every minute some dropped down, and the water was covered with their dead bodies: nor was excessive cold the cause of their death; it was evidently the want of food; for those picked up were reduced to mere skeletons; the walls of the terrace were their last resort, and they greedily devoured the dried flies that hung from the old spider webs.

These birds build their nests in chimneys, one above another. They construct them with mud mixed with straw, leaving the top quite open: the inside is lined with grass and feathers; and here they lay from four to six eggs, sometimes quite white, and sometimes speckled with red. They breed twice in the season; the first brood quits the nest the end of June or beginning of July, and the second towards the end of August. The male is very attentive to the female while she sits upon the nest, and his soft sweet note may be heard from the

house-top as soon as the day begins to break. The anxious care of this little creature for the preservation of the eggs is placed in a very strong light by Professor Kalm, whose Travels into America contains the following anecdote, related to him by a respectable lady who witnessed the fact. "A couple of swallows built their nest in the stable belonging to the lady; and the female laid eggs in the nest, and was about to brood them. Some days after, the people saw the female still sitting on the eggs; but the male, flying about the nest, and sometimes settling on a nail, was heard to utter a very plaintive note, which betrayed his uneasiness. On a nearer examination the female was found dead in the nest, and the people flung her body away. The male then went to sit upon the eggs; but after being about two hours on them, and perhaps finding the business too troublesome, he went out, and returned in the afternoon with another female, which sat upon the nest, and afterwards fed the young ones till they were able to provide for themselves."

The time when the young are hatched may be readily known by the passing and repassing of the parents, who are perpetually on the wing in search of food for them; and this they continue with unabating assiduity till the family no longer need their assistance. A person can hardly live long in the country without noticing the manners of these little domestic birds, who conduct their young as soon as they are fledged to the top of the chimney, where they may be seen quietly seated, and wait-

ing the arrival of their parents with food: here they remain for a few days, till they gain sufficient strength to reach some leafless bough, where, seated in a row, they receive alternately their share of flies. Their power to provide for themselves does not commence with their ability to fly; as they are still dependent upon their parents for some time after they have taken to wing, and may be seen playing about the place where the dams are watching for flies, which they receive with a fluttering motion and a short quick expressive note. When the swallows are upon the wing, they make a sharp noise with their bill every time they catch a fly: this noise is not unlike the shutting of a watch-case.

The activity of swallows in clearing the air of insects make them of singular service to us; and we should be very much annoyed by their rapid increase, if the wisdom of Providence had not directed every animal to seek its particular prey, and thus prevent the undue multiplication of any one species. In the Gentleman's Magazine the use they are of to us in this respect is properly noticed. "By the myriads of insects," says the writer, "which every single brood of swallows destroy in the course of a summer, these birds defend us in a great measure from the personal and domestic annoyance of flies and gnats; and, what is of infinitely more consequence, they keep down the numbers of minute enemies, which, either in the grub or winged state, would otherwise prey on the

labours of the husbandman. Since, then, swallows are guardians of our corn, they should every where be protected by the same popular veneration which in Egypt defends the ibis, and the stork in Holland. We more frequently hear of unproductive harvests on the Continent than in this country; and it is well known that swallows are caught and sold for food in the markets of France, Spain, and Italy. When this practice has been very general and successful, I have little doubt that it has at times contributed to the scarcity of corn. In England we are not driven to such resources to furnish our tables. But what apology can be made for those, and many there are whose education and rank should have taught them more innocent amusements, who wantonly murder swallows under the idle pretence of improving their skill in shooting game? Besides the cruelty of starving whole nests by killing the dam, they who follow this barbarous diversion would do well to reflect, that by every swallow they kill they assist the effects of blasts, mildews, and vermin, in causing a scarcity of bread. Every lord of the manor should restrain his gamekeeper from this execrable practice; nor should he permit any person to sport on his lands that does not refrain from it. For my part, I am not ashamed to own, that I have tempted martins to build round my house, by fixing scallop shells in places convenient for their 'pendent beds and procreant cradles;' and have been much pleased in observing with what caution the little architect

raises a buttress under each shell, before he ventures to form his nest on it."

In the autumn, when the time approaches for the swallows to leave this country, they assemble in vast numbers, and generally occupy the tops of houses, the steeples of churches, or the sides of cliffs, where we have seen them, at Dover, collected in large flocks, and making a continual noise till they have suddenly taken their departure. The subject of the migration of these birds has occasioned much controversy among naturalists, who have been completely divided in their opinions; one party contending for their submersion in rivers and lakes during the winter; the other insisting, with more propriety, on their migration to foreign countries. Both sides of the question have been too much canvassed to make it necessary for us to enter particularly upon the subject: we shall therefore only observe with Mr. Pennant, that Olaus Magnus, archbishop of Upsal, very gravely informs us, that these birds are often found in clustered masses at the bottom of the northern lakes, mouth to mouth, wing to wing, foot to foot; and that they creep down the reeds in autumn to their subaqueous retreats. That when old fishermen discover such a mass, they throw it into the water again; but when young inexperienced ones take it, they will, by thawing the birds at the fire, bring them indeed to the use of their wings, which will continue but for a short time, being owing to a premature and forced revival. But the good archbishop does not

stop here; for after stocking the bottoms of the lakes with birds, he stores the clouds with mice, which sometimes fall in plentiful showers in Norway and the neighbouring countries.

If swallows can live, as some contend they can, for six months at the bottom of a river, Is it possible that a submersion for twelve hours in a butt of water should completely kill them? yet nothing is more strictly true; since we tried every means in our power to recover two of these birds, which had met with this accident, without being fortunate enough to produce the smallest sign of returning animation.

> "Amusive birds! say where your hid retreat,
> When the frost rages and the tempests beat;
> Whence your return by such nice instinct led,
> When Spring, sweet season, lifts her bloomy head?
> Such baffled searches mock man's prying pride,
> The God of Nature is your secret guide!"

We shall here notice the esculent swallow on account of his curious nest, which is considered as such a luxury in the East that it forms a considerable branch of traffic among the Javanese. The bird is described as smaller than the wren, with a brown back and forked tail, the feathers of which are tipped with white.

This celebrated nest seldom weighs more than half an ounce, and is found of the shape of half a lemon, adhering to the roofs and sides of the rock. Its texture is said to resemble isinglass, or gum-drajon, and is externally composed of exceedingly

thin and nearly concentric layers of a soft slimy substance: the inside somewhat resembles coarse net-work, the threads being drawn from the same substance with the outer layers, and much interwoven. It has puzzled several naturalists to find out of what this nest is composed, and different persons have given different opinions: it has been supposed to consist of sea-worms, of the sea qualm, a sort of cuttle-fish, or of a glutinous sea plant called agal-agal: however it matters little, as the knowledge of its component parts has nothing to do with its flavour, and that, it seems, is what the Chinese look to in the choice of their nests. The best sort, which are perfectly white and clean, are either dissolved in broth to improve its relish, or softened in water, and pulled to pieces, after which they are mixed with ginseng, and put into the body of a fowl. This is stewed in water all night, and eaten as a luxury the next day.

About twenty-five pounds weight of these nests sell in China from a thousand to fifteen hundred dollars; those which are black and dirty, however, are not worth more than twenty dollars. The exportation from Batavia of this article is so great, that we are told the Dutch send twenty-five thousand pounds weight every year to China. We shall subjoin part of the letter which M. Poivre sent to the Count de Buffon on this subject, and likewise Sir George Staunton's interesting description of this bird and its nest. The former gentleman embarked in July 1741, in the ship Mars,

bound for China; and in the same year reached the straits of Sunda, very near Java, and between two small islets, called the Great and Little Tocque. "Here," says he, "we were becalmed, and went on shore on Little Tocque to hunt green pigeons. While the rest of the party were clambering among the precipices, I walked along the beach to gather shells and jointed corals, which are found here in great abundance. After having made almost an entire circuit of the islet, it was growing late, when a sailor who accompanied me discovering a deep cavern in the rocks on the brink of the sea went into it, and scarce advanced two or three steps when he called to me. I hastened to the mouth of the cavern, and found it darkened by an immense cloud of small birds, which poured out in swarms. I entered it, and knocked down with my cane many of these poor little birds, with which I was then unacquainted: as I penetrated further, I perceived the roof of the cavern to be covered entirely with small nests shaped like holy-water pots. The sailor had already broken off several, and had filled his frock with them and with birds. I also detached some of the nests, and found them glued firmly to the rock. Night now came on, and we returned to the ship with the fruits of our excursion."

Sir George Staunton has thus described the esculent swallow and its nest, in his Account of the Embassy to China. "In the Cass, a small island near Sumatra, were found two caverns running hori-

zontally into the side of the rock; and in these were a number of those birds' nests so much prized by the Chinese epicures. They seem to be composed of fine filaments, cemented together by a transparent viscous matter, not unlike what is left by the foam of the sea upon stones alternately covered by the tide, or those gelatinous animal substances found floating on every coast. The nests adhere to each other and to the sides of the cavern, mostly in rows, without any break or interruption. The birds that build these nests are small gray swallows, with bellies of a dirty white. They were flying about in considerable numbers; but were so small, and their flight was so quick, that they escaped the shot fired at them. The same sort of nests are said to be also found in deep caverns at the foot of the highest mountains in the middle of Java, at a distance from the sea; from which source it is thought that the birds derive no materials, either for their food or the construction of their nests; as it does not appear probable they should fly, in search of either, over the intermediate mountains, which are very high, or against the boisterous winds prevailing thereabout. They feed on insects which they find hovering over stagnated pools between the mountains, and for the catching of which their wide-opening beaks are particularly adapted. They prepare their nests from the best remnants of their food. Their greatest enemy is the kite; who often intercepts them in their passage to and from the caverns, which are generally

surrounded with rocks of gray limestone, or white marble. The nests are placed in horizontal rows, at different depths, from fifty to five hundred feet. The colour and value of the nests depend on the quantity and quality of the insects caught; and, perhaps, also on the situation where they are built. Their value is chiefly ascertained by the uniform fineness and delicacy of their texture; those that are white and transparent being most esteemed, and fetching often in China their weight in silver.

"These nests are a considerable object of traffic among the Javanese, many of whom are employed in it from their infancy. The birds, after having spent nearly two months in preparing their nests, lay each two eggs, which are hatched in about fifteen days. When the young birds become fledged it is thought the proper time to seize upon their nests, which is done regularly three times a-year, and is effected by means of ladders of bamboo and reeds, by which the people descend into the caverns; but when these are very deep, rope ladders are preferred. This operation is attended with much danger, and several perish in the attempt. The inhabitants of the mountains generally employed in this business, begin always by sacrificing a buffalo; which custom is observed by the Javanese on the eve of every extraordinary enterprise. They also pronounce some prayers, anoint themselves with sweet-scented oil, and smoke the entrance of the cavern with gum benjamin. Near some of the

caverns a tutelar goddess is worshipped, whose priest burns incense, and lays his protecting hands on every person preparing to descend. A flambeau is carefully prepared at the same time with a gum which exudes from a tree growing in the vicinity, and which is not easily extinguished by fixed air or subterraneous vapours.

GOATSUCKER.

GENERIC CHARACTER.

Bill a little incurved, very short, and furnished with bristles round the base.
Mouth extremely wide.
Ears large.
Tongue sharp and entire.
Nostrils tubular; very prominent.

SPECIFIC CHARACTER.

CAPRIMULGUS CAROLINENSIS. C. supra lineis transversis angulatis alternis atris et griseis varius, subtus ex rufo griseus lineis nigricantibus longitudinalibus, cauda griseo atro cancellata. *Linn. Syst. Nat. Gmel.* 1. p. 1028.

Variegated above by transverse angled lines; alternately black and gray; below rufous gray, with blackish longitudinal lines; tail gray, latticed with black.

RAIN BIRD. *Brown. Jam.* p. 467.

SHORTWINGED GOATSUCKER. *Arct. Zool.* 2. p. 434. no. 336.

CAROLINE GOATSUCKER. . . *Buff. Birds* 6. p. 448. *Catesb. Carol.* 1. t. 8. *Lath. Synop.* 2. p. 592. no. 4.

THE eyes of this species, in common with the rest of the genus, are too delicate to bear the light of day; hence they never appear till sun-set in the

evening, and retire in the morning a little after sun-rise: they never build a nest, but lay two eggs upon the bare ground, which they will scarcely quit on the nearest approach. They live entirely upon insects, and are provided with a most capacious mouth for the purpose of catching them. When in pursuit of their prey, they are in the habit of wheeling many times successively round the trunk of some aged tree, with a very irregular and rapid motion; and when thus employed it is difficult to get within gun-shot of them; for they quickly disappear, nor can their retreat be discovered.

These birds have a singular note, which has induced the inhabitants of the northern provinces of America to give them the name of *Whip-poor-Will*. They frequent the steps of houses in search of insects, and are often seen in numbers perched on rails or bushes, where they repeat their song with a great noise from sun-set until dark: during the night they are quiet; but their call again commences with the dawn, and continues till the sun rises. They make likewise a sort of buzzing noise like the whirling of a spinning-wheel.

Although the goatsuckers are very common among the mountainous parts of America, they are extremely rare near the sea side. This is confirmed by Mr. Clayton, who never heard but one in the maritime parts, though he constantly resided there; "But near the mountains," says this gentleman, "within a few minutes after sun-set, they begin, and make so shrill and loud a noise, that the echoes from the rocks and sides of the mountains increase

to such a degree, that the first time I lodged there I could hardly get any sleep."

The gloomy habits of these birds, together with their unpleasant call, is probably the reason why the Indians consider them as ominous. They believe that goatsuckers were not known till their countrymen were murdered by the English, and that they are the departed spirits of the massacred Indians. Catesby assures us that abundance of people in Carolina look upon them as birds of ill omen; and are very melancholy if one alights on the house, or near the door, and begins its call, which they will sometimes do upon the very threshhold; for they firmly believe one of the family will die soon after.

Our European species is supposed, by Buffon, to have originated in America, from whence it has been expelled by some fortuitous event. It makes but a short stay with us, appearing towards the end of May, and leaving the island in September. It begins its whirling note at the close of day, sitting usually on a bare bough with the head lower than the tail, the lower jaw quivering with the efforts. The noise is said to be so very violent as to give a sensible vibration to any little building it chances to alight on. It lays two eggs of a whitish hue, marbled with reddish brown.

WADERS.

CRANE.

GENERIC CHARACTER.

Bill straight, long, and pointed.
Nostrils linear.
Tongue acute.
Four toes on each foot.

SPECIFIC CHARACTER.

ARDEA GRUS. . A. occipite nudo papilloso, pileo remigibusque nigris, corpore cinereo, rectricibus intimis laceris. *Linn. Syst. Nat. Gmel.* 1. p. 620.
With a bald crown, quill feathers black, body ash-coloured, tail feathers divided from the bottom.

COMMON CRANE. *Buff. Birds,* v. 7. p. 277. pl. 175. *Lath. Syn.* 3. p. 40. n. 5. *Will. Orn.* p. 374. t. 48. *Penn. Brit. Zool. App.* p. 629. t. 1. *Bew. Birds,* 2. p. 29.

KÆMPFER, in his History of Japan, tells us that cranes are considered in that country as animals of good omen, and that the apartments of the em-

peror and the walls of the temples are decorated with their figures. In Persia, where they are likewise very common, it is the prerogative of the prince to hunt them. "At early dawn," says Olearius, "the king sent to inform the ambassadors, that he would go with a very few attendants to the chase of the cranes, entreating them not to bring their interpreters, that the cranes might not be scared by a multitude, nor the pleasure of the sport be disturbed by noise. It began with the day. A covered way had been made under ground, at the end of which was the plain, where corn had been scattered; the cranes came in great numbers, and more than four score were caught. The king took some feathers to put into his turban, and gave two to each of the ambassadors, who stuck them into their hats."

From this account it appears that these birds must be as numerous in Persia as in Poland, where, it is said, the peasants are obliged to build huts in the midst of their fields of buck-wheat, to drive them off. They are scattered over great part of the globe, and not only visit all the temperate climates, but are found in the two extremes; migrating as far north as Siberia, and into the southern parts of Africa. In Ray's time they frequented England, and appeared in large flocks in the fens of Lincolnshire and Cambridgeshire; but they now very rarely visit this island, and are at present scarcely known to the inhabitants of those counties.

The plumage of the crane is of a fine waved light

ash colour, except the great quills of the wing, the covering of the head, and the fore part of the neck. A large tuft of elegant unwebbed curling feathers springs from one pinion of each wing, which fall back gracefully, and by their flexibility, their position, and their texture, resemble the plumes of the ostrich. The straight, pointed, and compressed bill bears so strong a resemblance to the seed-vessel of the geranium, that it has given its name to the plant. The sides of the head and the hind part of the neck are white; on the upper part of the neck there is a bare ash-coloured space of two inches; and above this the skin is bare and red, with a few scattered hairs. The figure of the bird is slender, his gait erect, his length four feet, and his weight about ten pounds.

Cranes choose marshy situations to nestle in, where they lay two blueish eggs; and the young ones are scarcely reared when the season of their departure arrives, and they must employ their newly acquired strength in accompanying their parents in their route. The first cold days in autumn serve them as a warning to depart to milder climates; previous to their retreat, they assemble in amazing numbers, and, having chosen a leader, at once soar to the higher regions of the atmosphere, where they arrange themselves into the form of a triangle, and proceed to their designed place. They are exceedingly clamorous; and though their voyage is generally performed in the night, their loud screams betray their course. During this nocturnal

passage, it is said that the leader frequently calls to rally his forces, and point out the track; and the cry is repeated by the flock, each answering, to give notice that it follows and keeps its rank. Milton, when he touches on this wonderful instinct of Nature, finely describes their progress:

> Part loosely wing the region: part more wise,
> In common rang'd in figure, wedge their way,
> Intelligent of seasons, and set forth
> Their airy caravan, high over seas
> Flying, and over lands, with mutual wing
> Easing their flight. So steers the prudent crane
> Her annual voyage, borne on winds;
> The air floats as they pass, fann'd with unnumber'd plumes.

Cranes during their flight are frequently seen to alter their direction; and those who have observed these variations, say that they indicate a change of weather, and suppose that the vast height to which they soar enables them to perceive or to feel the distant alterations in the atmosphere. Aristotle made them his hygrometer, and tells us that the cries of cranes in the day-time forebode rain; and noisy confused screams announce a storm: if in the morning or evening they rise upwards, and fly peaceably in a body, it is a sign of fair weather; but if they keep low, or alight on the ground, it menaces a tempest.

"When the cranes," says Buffon, "are assembled on the ground, they set guards during the night; and the circumspection of these birds has been consecrated in the hieroglyphics, as the symbol of vigi-

lance. The flock sleep with their head concealed under their wing; but the leader watches with his head erect; and if any thing alarms him, he gives notice by a cry." This account is strengthened by the authority of Kolben, who observed large flocks of cranes in the marshes about the Cape of Good Hope; but never saw a flock of them on the ground, without some placed apparently as sentinels, to keep a look-out while the others were feeding; and these on the approach of danger immediately gave notice to the rest. We are likewise informed by him, that these sentinels stand on one leg; and at intervals stretch out their necks, as if to observe that all is safe. On a signal being given from the watch, the whole flock are instantly on the wing.

Though these birds feed on grain, and frequent the fields to collect it, yet they prefer insects, worms, and small reptiles; and are therefore, like the stork, of great service in Egypt, where they are said to take up their winter quarters.

A white crane is found in North America, which from its peculiar cry is called the hooping crane. These birds appear about Hudson's Bay in the summer time, and return to the southward as soon as the winter approaches. They make a remarkable hooping noise, which made Mr. Pennant imagine them to be the birds whose clamour Captain Philip Amidas, the first Englishman who ever set foot on North America, so graphically describes on his landing on the isle of Wokakow, off the coast of

NUMIDIAN CRANE.

Designed by W. Daniell.

Published by Messrs. Cadell & Davies, London March 1 1807.

North Carolina. "When," says he, "such a flock of cranes, the most part white, arose under us, with such a cry, redoubled by many ecchoes, as if an armie of men had showted all together." This was in the month of July; which proves that in those early days this species bred in the then desert parts of the southern provinces, till driven away by population, as was the case with the common crane in England; which abounded in our undrained fens, till cultivation forced them entirely to quit our kingdom.

But the most elegant of the cranes is the Numidian, whose figure we have given from a very beautiful specimen in the possession of Mr. Parkinson. It has all the proportions of the crane on a smaller scale, and the same distribution of colours on the plumage, only the gray is purer. Two beautiful white tufts of unwebbed and hairy feathers, falling from behind each eye, form a sort of headdress; while long, soft, and silky hairs of the finest black lie on the crown of the head; similar feathers descending from the fore part of the neck hang gracefully below it; and, to complete the figure, long and pendent bending tufts appear between the black quills of the wings.

On account of its elegant form, its rich garb, and its affected airs, the French have named this bird the Demoiselle or Miss, and remark that it makes repeated reverences as it walks along, at the same time treading the ground with all the lightness and gaiety of a dancer. This bent, which in a certain

degree may be remarked in the common crane, is so striking in this Numidian bird, that all authors who have hitherto mentioned it, from the earliest time to the present day, have named it from its mimic gestures. Aristotle calls it the actor or comedian; Pliny, the dancer or vaulter; and both Plutarch and Athenæus have noticed its singular manners. Though this bird was famous among the antients, it was little known, and seldom seen in Greece or Italy; and, confined to its own climate, it enjoyed a sort of fabulous celebrity. It was late before the moderns were acquainted with it. The six Numidian cranes which were kept for a considerable time in the French king's menagerie, are said to have propagated there, and that the one which died last at the age of twenty-four, was hatched in it. We have nothing further to add respecting this bird, except that our English sailors, who are not so well acquainted with the art of dancing as the French, call it the buffoon, and say that it cuts a very ridiculous figure.

STORK.

Designed by W. Daniell.

Published by Messrs. Cadell & Davies, London, March 1 1807.

STORK.

SPECIFIC CHARACTER.

ARDEA CICONIA. A. alba, orbitis remigibusque nigris, rostro, pedibus, cuteque, sanguineis. *Linn. Syst. Nat. Gmel.* 1. p. 621.

Body white; wing feathers black; beak, feet, and skin, of a blood red colour.

CICONIA ALBA. *Briss. Av.* 5. p. 365. t. 32.

WHITE STORK. *Buff. Birds*, v. 7. p. 243. pl. 173. *Will. Orn.* p. 286. t. 52. *Alb. Av.* t. 64. *Lath. Syn.* 3. p. 47. no. 9. *Bew. Birds*, p. 32.

Who bid the stork, Columbus like, explore
Heavens not his own, and worlds unknown before?
Who calls the council, states the certain day,
Who forms the phalanx, and who points the way?

POPE.

THE migration of birds to different parts of the world at stated times, from which they never vary, forms one of the most curious as well as most interesting phænomena in nature. Among the rest, the storks prepare with great exactness for their flight; and about the latter end of August leave Europe to pass the winter in climates more congenial to their nature. They are convened, previous to their departure, from all the neighbouring

parts, and assemble in amazing numbers, making a frequent clattering with their bill, and trying their wings by several short flights: indeed the whole flock is in tumultuary commotion; all seem eager to form acquaintance, and to consult on their projected route. On the signal being given, they all of a sudden take flight, and rise with such swiftness, that this vast body, which but a moment before completely covered the plain, is presently lost in the clouds.

The white stork is about three feet and a half long, of which the bill measures seven inches; the legs are eight inches, the naked part of the thighs five inches, and the wings, when extended, not less than six feet. The rest of the description is included in the specific character already given.

In autumn the plains of Egypt are entirely covered with these birds. "It is perfectly ascertained," says Belon, "that the storks winter in Egypt and in Africa; for we have seen the plains of Egypt whitened by them in the months of September and October. At that season, when the waters of the Nile have subsided, they obtain abundance of food; but the excessive heats of summer drive them to more temperate climates." The storks make their appearance in Germany about the eight or tenth of May, and are seen before that time in the provinces of France. Their return is always welcomed, as it announces spring. When they arrive they immediately seek out their old nests; for the storks always settle in the same spots;

and if they have been destroyed, they rebuild them with twigs and aquatic plants. They usually settle on lofty ruins, on the battlements of towers, or any high situation where they can command an extensive view, and yet conceal their nest. Buffon assures us, that it was customary in Belon's time to place wheels on the house-tops in order to entice the storks to build their nests in them. This practice still subsists in Germany and Alsace; and we are told that in Holland square boxes are planted on the ridges with the same view. The stork lays from two to four eggs of a dirty yellowish white; the incubation lasts a month, and both parents are very assiduous in providing for their young. The male and female leave the nest by turns; and while one is gone, the other stands near the spot on one leg, and constantly watches the brood. When the young first make their appearance they are covered with a brown down, and their long legs being too weak to support them, they are obliged to creep upon their knees. When they are sufficiently fledged to venture from home, they trust themselves to the care of their mother, who exercises them in small circumvolutions, and then returns with them to the nest; after which they soon attain their full strength, and join the rest of their species.

Among the antients it was considered a crime to kill a stork; and Pliny assures us that in Thessaly the murder of one of these birds was punished by death, on account of their great use in clearing that

country of serpents. Their filial piety too was so greatly celebrated, that the law which compelled the maintenance of parents was enacted in honour of them, and Aristophanes draws from their conduct a bitter satire on the human race. The Mahometans esteem the stork; and the Egyptians have a great veneration for it.

A few years ago one of these birds was shot near Sandwich, and brought to Mr. Boys of that place, who assured us that the stork, being but slightly hurt in the wing, made a desperate resistance before he was killed, and wounded the man in the leg with his long bill. This circumstance is worthy of notice, as it has been said that the stork never visits this country. Storks feed chiefly on frogs, and are therefore of great use to the Egyptians, who would be over-run by them upon the subsiding of the Nile if it were not for these birds.

HERON.

Designed by W. Daniell.

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HERON.

SPECIFIC CHARACTER.

ARDEA MAJOR. A. occipite crista nigra dependente, corpore cinereo, collo subtus linea fasciaque pectorali nigris. *Linn. Syst. Nat. Gmel.* 1. p. 627.

A black crest pendent from the head, body ash-colour, marked with black streaks beneath the neck.

ARDEA CRISTATA. *Briss. Av.* 5. p. 396. no. 2. t. 35.

CRESTED HERON. *Albin. Av.* 1. t. 67.

COMMON HERON. *Buff. Birds*, v. 7. p. 329. *Arct. Zool.* 2. p. 444. no. 343. *Will. Orn.* p. 277. t. 49. *Lath. Syn.* 3. p. 83. no. 50. *Bew. Birds*, 2. p. 37.

BETWEEN the classes of land birds that shun the water, and the water fowl that are made for swimming and living on it, there is formed a very numerous tribe that seem to partake of a middle nature, that with divided toes, seemingly fitted to live upon land, are at the same time furnished with appetites that chiefly attach them to the waters. They are destined to provide all their sustenance from watery places, and yet are unqualified to seek it in those depths where it is often found in greatest plenty. Of this class we are now treating, and of this number is the heron, whose external

form is elegant, though when stripped of his feathers he is Indigence itself. The hind part of the head is adorned with a loose pendent crest of long black feathers waving with the wind; these are the feathers which are so highly prized in the East; the upper part of the neck is pure white; but lower down there is a double row of black streaks, succeeded by long, narrow, white, unwebbed feathers, falling loosely and elegantly over the breast. The bird weighs about three pounds and a half, and stands about three feet high; his long legs are of a dirty green colour; his toes are furnished with short claws, and the middle one on each foot is finely serrated on the inner edge.

The heron seems to be a very indolent bird, and has been seen in the worst weather pensively seated on a stake, or on a stone, beside the brink of a rivulet, or on a little eminence in a deluged meadow, while the other birds seek a cover among the foliage. When in pursuit of his prey, he will remain for hours, and sometimes days, in the same spot; and so perfectly still as to discover no signs of life. If he changes his posture, it is only to advance knee deep into the water, where, holding his head between his legs, he patiently watches the passing frog or fish. But as he entirely depends upon chance for his food, he is often obliged to bear a long abstinence, and is sometimes said to perish of absolute hunger. Mr. Herbert tells us that he caught one which was half frozen, and entirely encrusted with ice.

This stationary disposition in the heron is the cause of his committing the greatest devastations in our well stocked fish-ponds; for there is scarcely a fish, however large it may be, that he will not strike at and wound, though unable to carry it away; his patience in waiting for his prey can only be equalled by his activity in catching it; for, if once it comes within his sight, he darts upon it with unerring aim. In this manner he is said to destroy more in a week than an otter would in a month. Willughby tells us of some gentleman who kept tame herons, to try what quantity one of them would eat in a day. They accordingly put several small roach and dace into a tub, and found that upon an average he ate fifty a day; consequently the destruction of one of these birds to a fish-pond in the course of a season must be very great.

The incredible mischief which the heron did to ponds newly stocked with fish induced Willughby to give the following receipt for taking him: "Having found his haunt, get three or four small roach or dace, and having provided a strong hook with a wire to it, draw it just within side the skin of the fish, beginning without side the gills, and running it to the tail, by which the fish will not be killed, but continue for five or six days alive. Then having a strong line made of silk and wire, about two yards and a half long, tie it to a stone at one end, the fish with the hook being suffered to swim about at the other. This being properly disposed in shallow water, the heron will seize upon the

fish to its own destruction." From this we may learn that the fish must be alive, otherwise the heron will not touch them; and that this bird, as well as all those that feed upon fish, must be its own caterer; for they will not prey upon such as die naturally, or are killed by others before them.

But, as we have said before, the heron is often obliged to bear a long abstinence, as his food cannot be readily got at all times; in cold or stormy seasons his prey is no longer within reach; the fish that before came into the shallow water now retire to the deep, which they find to be the warmest situation. Frogs and lizards also seldom venture from their lurking-places; and all that remains for the heron is to support himself upon his long habits of patience. It has been observed, that at these times he contracts a consumptive disposition, which succeeding plenty is not able to remove; so that the meagre glutton spends his time between want and riot, and feels alternately the extremes of famine and excess. Hence, notwithstanding the ease with which he takes his prey, and the amazing quantity he devours, the heron is always lean and emaciated; and though his crop be usually found full, yet his flesh is scarcely sufficient to cover his bones.

Though these birds are never in flocks when they fish, but commit their depredations in solitude and silence, yet they associate together for the purpose of incubation, and build their nests in trees, like rooks, or in high cliffs that overlook

the sea. When they build in trees, they generally choose the tallest, and form their nest of sticks with abundance of dry grass and rushes, lining the inside with wool. They lay five or six large eggs of a pale green colour, and during incubation the male spends much of his time perched by the female. Mr. Pennant counted above eighty nests in one tree at Cressy Hall, near Gosberton, in Lincolnshire.

Their indolent nature is as strongly marked in their nestling, as in their habits of depredation; for it is a known fact, that they will not always be at the trouble of building a new nest when their own is destroyed, but will occupy a rook's, or one that has been left by an owl, enlarging it to their mind; and if the original owner returns, they will contend the point with him, and frequently remain possessors. There cannot be a stronger instance of this than the following, which is thus related by Heysham: "A remarkable circumstance with respect to these birds occurred not long ago at Dallan Tower, in Westmoreland, the seat of Daniel Wilson, esq.

"There were two groves adjoining to the park; one of which for many years had been resorted to by a number of herons, which there built and bred; the other was one of the largest rookeries in the country. The two tribes lived together for a long time without any dispute. At length the trees occupied by the herons, consisting of some fine old oaks, were cut down in the spring of 1775, and the

young brood perished by the fall of the timber. The parent birds immediately set about preparing new habitations, in order to breed again; but as the trees in the neighbourhood of their old nests were only of a late growth, and not sufficiently high to screen them from the depredations of boys, they determined to effect a settlement in the rookery. The rooks made an obstinate resistance; but after a very violent contest, in the course of which many of the rooks and some of their antagonists lost their lives, the herons at last succeeded in their attempt, built their nests, and brought up their young.

"The next season the same contest took place, which terminated like the former, by the victory of the herons: since that time peace seems to have been agreed upon between them; the rooks have relinquished that part of the grove which the herons occupy; the herons confine themselves to those trees they first seized upon; and the two species live together in as much harmony as they did before the quarrel."

As the young when hatched are very voracious and importunate, the parents are obliged to be doubly assiduous to provide them with food; and the quantity of fish taken to supply a hernery at this season is amazing. The young are at first covered, for a considerable time, with a thick hairy down, chiefly on the head and neck.

Heron-hawking was once such a favourite diversion, that Pennant informs us laws were enacted

for the preservation of the species, and the person who destroyed their eggs was liable to a penalty of twenty shillings for each offence. The old proverb, not to know a hawk from a heronshaw, afterwards corrupted to, not to know a hawk from a handsaw, was taken originally from this diversion. The longevity of the heron is confirmed by the account of one that was taken in Holland by a hawk belonging to the stadtholder, the bird having a silver plate fastened to one leg, with an inscription importing that it had been struck by the elector of Cologne's hawks thirty-five years before.

WEB-FOOTED BIRDS.

DUCK.

GENERIC CHARACTER.

Bill strong, depressed, and divided on the edge into sharp lamellæ.
Nostrils small and oval.
Tongue fleshy; ciliated near the base.

WILD SWAN.

SPECIFIC CHARACTER.

ANAS CYGNUS. A. rostro semicylindrico atro, cera flava, corpore albo. *Linn. Syst. Nat. Gmel.* 1. p. 510.
Bill semicylindrical and black; cere yellow; body white.
CYGNUS FERUS. *Briss. Av.* 6. p. 292. no. 12. t. 28.
WILD SWAN. . *Buff. Birds,* 9. p. 1. *Brit. Zool.* 2. p. 562. no. 264. *Will. Orn.* p. 356. t. 69. *Edw. Av.* t. 150.
WHISTLING SWAN. *Arct. Zool.* 2. p. 541. no. 469. *Lath. Syn.* 3. p. 433. no. 1.

THE whole plumage of this species is pure white; it weighs from thirteen to sixteen pounds; and measures, to the tip of the tail, four feet ten. It

is less than the tame swan, and makes a peculiar noise, which may be heard at a great distance, from whence it has got the name of the hooper. These birds inhabit the northern parts of the world as high as Iceland; they are very common in Siberia, and in Kamtschatka, from whence, in the autumn, they migrate to our more hospitable shores, and take up their abode with us till the return of spring. They leave this country about March, and retire to the northward to breed. Great numbers of them are annually brought forth in Lapland. The cygnets are ugly when very young, and only covered with a gray or yellowish down like goslings. They are much esteemed in some places, and considered a delicate dish.

There is a remarkable difference between the anatomical structure of this bird and the tame swan, whose wind-pipe sinks down into the lungs in the ordinary manner; whereas the same part in the wild swan, after falling into the chest, returns back like a trumpet, and then makes a second bend to join the lungs, being previously divided into two branches, which are much dilated in the middle.

About August, when the wild swans moult, the natives of Iceland prepare to chase them; for they are at that time unable to fly, from the loss of feathers. This object is carried into effect by a number of people who collect together, and resort to the places where they most abound. As the swans run very fast, it is necessary to be provided with some

good horses which are trained to the sport, and capable of passing nimbly over the boggy soil and marshes. By the help of these animals, together with some good dogs great numbers of birds are taken; and we are told that the dogs, are taught to catch them by the neck, when they immediately lose their balance and become an easy prey. Great use is made of their plumage; the Indians of Louisiana forming the large feathers into diadems for their chieftains, while the lesser are woven into garments for women of rank. The skin, both of the body and the legs, has its use; the former, unplucked, is made into beautiful down tippets for the young of both sexes; and the latter, which looks like shagreen, is used for purses.

It is not surprising that the Icelanders should compare the loud and shrill note of the wild swan to a musical instrument, when we consider that they were to them the harbingers of spring; they were pleasing prophets, who foretold that a speedy thaw would release them from their icy bonds. A voice that announced to them the end of their long and gloomy winter could not fail to be melodious.

The powers of melody with which the antients endued the swan belong exclusively to this species; the tame swan being the most silent of birds, and only able to hiss when provoked. It was supposed that the souls of departed poets passed into the body of this bird, and harmonized its dying note: for, unlike all other animated beings, who

shudder at the prospect of approaching dissolution, the swan was said to chant in the moment of its agony, and with harmonious sounds prepare to breathe its last. This fable was not lost upon our Shakspeare:

> "Let music sound, while he doth make his choice;
> Then if he lose, he makes a *swan-like end*."

The Count de Buffon, with his usual elegance, has thus described this fabulous property: "When about to expire, and to bid a sad and tender adieu to life, the swan poured forth those accents so sweet, so affecting; and which, like a gentle and doleful murmur, with a voice low, plaintive, and melancholy, formed its funereal song. This tearful music was heard at the dawn of day, when the winds and the waves were still; and they have been seen expiring with the notes of their dying hymn."

No fiction of natural history, no fable of antiquity, was ever more celebrated, oftener repeated, or better received. It occupied the soft and lively imagination; poets, orators, even philosophers adopted it, as a truth too pleasing to be doubted. And well may we excuse such fables; they were amiable and affecting; they were worth many dull and insipid truths; they were sweet emblems to feeling minds. The swan doubtless chants not its approaching end; but in speaking of the last flight, the expiring effort of a fine genius, we shall ever, with tender melancholy, recall the classical and pathetic expression, "*It is the song of the swan!*"

Among the many natural rarities which have lately been discovered in New Holland, is a black swan. The general appearance of this very elegant bird is like the tame swan: it has all those graceful attitudes which so eminently distinguish it from the other inhabitants of the waters. The plumage of this remarkable species is of a full deep black, with a bill of the finest red, and white quill feathers. The tip of the upper beak is blackish; there is a yellow spot near it; the legs and feet are black.

GOOSE.

SPECIFIC CHARACTER.

ANAS ANSER. A. rostro semicylindrico, corpore supra cinereo subtus pallidiore, collo striato. *Linn. Syst. Nat. Gmel.* 1. p. 510.

Bill semicylindrical; body ash-coloured above, and paler below; neck striped.

ANSER FERUS. *Aldr. Orn.* 3. p. 147. t. 150. 151.

ANSER SYLVESTRIS. *Briss. Av.* 6. p. 265. no. 2.

WILD GOOSE. *Alb. Av.* 1. t. 95. *Will. Orn.* p. 358. no. 2. pl. 69.

GRAY LAG-GOOSE. *Brit. Zool.* 2. p. 570. no. 266. *Lath. Syn.* 3. p. 459. no. 21.

WILD geese in general fly very high, and keep in flocks from fifty to a hundred: when they migrate from one country to another, they marshal themselves in great order, and either form a straight line, or an angular figure like the letter V, which is as well calculated to preserve the ranks free and entire as to break the resistance of the air. The chief, who, it is said, occupies the point of the angle, retires when he is fatigued to the rear; and the rest by turns take his station. Thus with admirable exactness they wing their way, till they

arrive at the place of their destination. These birds are very clamorous, and may be heard, during their flight, when at almost an imperceptible distance above us. They inhabit the North of Europe, Asia, and America, and are seen early in the spring, flying over Sweden to the Lapland moors. They are said likewise to abound in Russia, Siberia, and Kamtschatka. This species in a state of domestication is our common goose, and in some regions they hold a middle place, being really wild in the summer, and becoming domestic in the winter. M. Buffon learnt this fact from Dr. Sanchez, who communicated to him the following account: "I set out from Azof in autumn 1736. Being sick, and afraid of falling into the hands of the Cuban Tartars, I resolved to walk, following the course of the Don, and to sleep every night in the village of the Cossacs, who are subject to the Russian dominion. In the first evenings of my journey, I remarked a great number of geese in the air, which alighted and dispersed through the hamlet. The third especially, I saw such a multitude at sun-set, that I inquired of the Cossacs, among whom I lodged that night, whether they were tame geese, and if they came from a distance, as their lofty flight seemed to indicate. Surprised at my ignorance, they replied that these birds came from the great Northern lakes; and that every year on the breaking up of the ice, in the months of March and April, six or seven pairs of geese leave each hut of the village, which all take flight in a body, and re-

turn not till the beginning of winter, as it is reckoned in Russia, that is, at the first snow; that these flocks arrive then, increased sometimes a hundred-fold; and dividing themselves, each little party seeks, with its new progeny, the houses where they lived the preceding winter. I had constantly that spectacle every evening for three weeks. The air was filled with infinite multitudes of geese, which dispersed in bands: the girls and women at the doors of their huts, looking at the flight, were calling out 'There go my geese,' 'There go the geese of such a one;' and each of the bands alighted in the court where they had spent the preceding winter. I continued to see these birds till I reached Nova Pauluska, where the winter was already intense."

Wild geese are found in our fenny counties, where they breed, and continue the whole year. The young ones are frequently taken; and after they are fatted, it is said, their flavour is much superior to the domestic goose. The feathers of these birds form so great an article of traffic in this country, that both in Lincolnshire and Somersetshire vast multitudes are repeatedly plucked to furnish us with feather-beds. These geese are tame, and are kept in such flocks that one person will sometimes possess a thousand old ones, each of which will rear seven; so that towards the end of the season he will become master of eight thousand. The order observed by the inhabitants with respect to their geese is well detailed by Mr. Pennant, who

observes, that "during the breeding season, these birds are lodged in the same houses with the people, and even in their very bed-chambers: in every apartment are three rows of coarse wicker pens, placed one above another; each bird has its separate lodge divided from the other, which it keeps possession of during the time of sitting. A person called a *gozzard* (goose herd) attends the flock, and twice a day drives the whole to water; then brings them back to their habitations, helping those that live in the upper stories to their nests, without ever misplacing a single bird." The extensive fens near Revesby Abbey, eight miles beyond Horncastle, are principally used for the rearing of geese, which are the chief dependence of the fen-men.

The cruel operation of plucking is performed upon these birds five times a-year. They are first plucked at Lady-day for feathers and quills; and the same is repeated for feathers only, four times between that and Michaelmas. The old geese submit quietly enough to the operation, but the young ones are very noisy and unruly.

Mr. Pennant was once present when this was performed, and observed, that goslings of six weeks old were not spared; for their tails were plucked;—as he was told, to habituate them early to what they were to come to. If the season proves cold, numbers of geese die by this barbarous custom. About ten pluckers are employed at the time, each with a coarse apron up to his chin.

The London markets are annually supplied from

these fens with amazing droves; and among them, we are told, all the superannuated geese and ganders, called in Lincolnshire *cagmags*, which by a long course of plucking prove uncommonly tough and dry, and are very apt to fatigue the jaws of those who are so unfortunate as to meet with them.

Under this head we shall take the liberty to include the manner in which two different species of wild geese are taken; for which we are principally indebted to the Arctic Zoology. The Canada goose, *anas canadensis* Linn., of which immense flocks appear in Hudson's Bay, are the chief support of the English settled in that part of the world, who in favourable years kill three or four thousand, which they salt and barrel. We can readily suppose that the return of a migratory bird of such importance to the colonists, must be looked for with impatience. This indeed is the case: it is considered as the harbinger of spring, and the month when they usually appear is named by the Indians the goose moon. The English send out their servants, as well as Indians, to shoot them on their passage; and as they are convinced that it is in vain to pursue them, they form a row of huts made of boughs, at musket-shot distance from each other, and place them in a line across the vast marshes of the country. Each hovel, or, as they are called, *stand*, is occupied by a single person. These attend the flight of the birds, and on their approach mimic their cackle so well that the geese will answer and come nearer the stand. During the time

he is thus engaged, the sportsman keeps motionless with his gun cocked, and never fires till he sees the eyes of the geese. After he has discharged one gun, he picks up another, which is purposely laid close beside him, and fires again as the geese are retiring. In order to decoy others to the spot, he sets up those he has killed on sticks as if alive, and also makes artificial birds for the same purpose. Notwithstanding every species of goose has a different call, yet the Indians are admirable in their imitation of every one; and in a good day, that is, when they fly in large flocks, a single Indian will kill two hundred.

The snow goose, *anas hyperborea* Linn., likewise visits Hudson's Bay, where thousands are annually shot by the Indians for the use of the settlement, and are esteemed excellent meat. They are described as the most numerous and the most stupid of all the goose race. They seem to want the instinct of others, and have so little of their shyness that they are taken in a very ridiculous manner in those parts of Siberia which they frequent. "The inhabitants," says Pennant, "first place near the banks of the rivers a great net, in a straight line, or else form a hovel of skins sewed together. This done, one of the company dresses himself in the skin of a white rein-deer, advances towards the flock of geese, and then turns back towards the net or the hovel; and his companions go behind the flock, and, by making a noise, drive them forward. The simple birds mistake the man in white for their

leader, and follow him within reach of the net, which is suddenly pulled down and captivates the whole. When he chooses to conduct them to the hovel, they follow in the same manner; he creeps in at a hole left for that purpose, and out at another on the opposite side, which he closes up. The geese follow him through the first; and as soon as they are got in, he passes round and secures every one. In that frozen clime they afford great subsistence to the natives; and the feathers are an article of commerce. Each family will kill thousands in a season. These they pluck and gut, then fling them in heaps into holes dug for that purpose, and cover them with nothing more than the earth. This freezes, and forms over them an arch; and whenever the family has occasion to open one of these magazines, they find their provision sweet and good."

The mode of taking these birds is certainly ridiculous enough, but it is exceeded by the manner in which the Kamtschatkans take the perroquet auk; and which we should hardly venture to mention, if it was not on the authority of so accurate a naturalist as Pennant. This gentleman informs us, that they are the most stupid of all birds, and that when the natives wish to catch them, they have only towards evening, to put on their garment with great sleeves, then pull out their arms and leave the sleeves distended, which the birds will creep into by flocks, and thus become an easy prey.

BERNACLE GOOSE.

SPECIFIC CHARACTER.

ANAS ERYTHROPUS. A. cinerea, fronte alba. *Linn. Syst. Nat. Gmel.* 1. p. 512.
Forehead white; body ash-coloured.
ANAS KASARKA. *Gmelin It.* 2. p. 177. pl. 13.

BERNACLE GOOSE. . *Buff. Birds,* 9. p. 81. pl. 236. *Brit. Zool.* 2. p. 577. no. 269. *Will. Orn.* p. 359. *Gerard's Herbal,* p. 1587. *Lath. Syn.* 3. p. 466. no. 26.

THERE cannot be a stronger instance of the great love which mankind have ever entertained for the marvellous than the present. We here find them asserting an impossibility with a most inflexible firmness; and maintaining their ground till the progressive improvement of natural history at length explained the wonder. Had this goose been brought into the world like other geese, it would never have been celebrated; but when we are assured that it springs from certain shells which are found attached to old and rotten pieces of floating wood, it immediately becomes of consequence. We shall pass by many others, equally credulous, to arrive at old Gerard, at the end of whose Herbal this astonishing transformation is related in the following words.

" But what our eyes have seene, and hands have touched, we shall declare. There is a small island in Lancashire, called the Pile of Foulders, wherein are found broken pieces of old and bruised ships, some whereof have been cast thither by shipwracke, and also the trunks and bodies with the branches of old and rotten trees, cast up there likewise; whereon is found a certain spume or froth that in time breedeth into certain shells, in shape like those of a muscle, but sharper pointed, and of a whitish colour; one end whereof is fastened unto the inside of the shell, even as the fish of oysters and muscles are; the other end is made fast unto the belly of a rude masse or lumpe which in time cometh to the shape and form of a bird; when it is perfectly formed the shell gapeth open, and the first thing that appeareth is the aforesaid lace or string; next come the legs of the bird hanging out, and as it groweth greater it openeth the shell by degrees, till at length it has all come forth, and hangeth only by the bill; in short space after it cometh to full maturitie, and falleth into the sea, where it gathereth feathers, and groweth to a fowle bigger than a mallard, and lesser than a goose, having black legs, and bill or beake, and feathers black and white, spotted in such a manner as our magpie, called in some places *pie annet*, which the people of Lancashire call by no other name than tree-goose; which place aforesaid, and all those places adjoining, do so much abound therewith, that one of the best is bought for three-pence. For the truth

hereof, if any doubt, may it please them to repaire to me, and I shall satisfie them by the testimony of good witnesses."

This ridiculous notion originated in the form of the animal inhabitant of a multivalve shell, the *lepas anatifera* Linn., whose feathered beard was in that credulous age magnified into the part of a young bird.

The bernacle geese are seen in vast flocks during winter, on the north-west coasts of this kingdom. They are very shy and wild, but when taken may be tamed in a few days. They live to a great age. Mr. Pennant says that Dr. Buckworth of Spalding had one which was kept in the family above thirty-two years; but was blind during the two last: what its age was when first taken was unknown.

MALLARD.

SPECIFIC CHARACTER.

ANAS BOCHAS. A. cinerea; rectricibus intermediis (maris) recurvatis, rostro recto, torque alba. *Linn. Syst. Nat. Gmel.* 1. p. 538.

Ash-coloured; middle tail feathers (in the male) strongly curled upwards; bill straight; a white incomplete circle round the lower part of the neck.

ANAS FERA. *Briss. Av.* 6. p. 318. no. 4.

WILD DUCK. *Will. Orn.* p. 308. t. 72. 75. *Alb. Av.* 1. t. 99. 2. t. 10. *Buff. Birds,* v. 9. p. 100.

MALLARD. . *Penn. Brit. Zool.* 2. p. 591. pl. 97. *Arct. Zool.* 2. p. 563. no. 494. *Lath. Syn.* 3. p. 489. no. 43.

A PARTICULAR description of the plumage of a bird so well known as the mallard would be superfluous; we shall, therefore, immediately proceed to mention whatever may be interesting in its natural history; and after having traced the young ones from the egg, we shall give some account of the manner, which the inhabitants of the fenny countries employ to catch the prodigious numbers that are annually sold in our markets.

The spot generally chosen by these birds for the purpose of incubation, is a thick tuft of rushes in the middle of a marsh, and here the female forms her nest, by pressing down the rushes till they take the required shape. In this nest she lays from ten to fifteen eggs, after having lined it with the down which she pulls from her body. The incubation lasts thirty days; and within twenty-four hours after the young are hatched the mother quits the nest, and calls them to the water. But, timorous, chilly, and totally unused to the element, they refuse to enter till some of the boldest plunge after their parent, and then the rest soon follow. They pass through their different stages of growth precisely like the tame species, and continue the same awkward misshapen creatures till they have acquired their full plumage. The common tame ducks originate from these; and the drakes, however they may vary in colours, always retain the curled feathers in the tail.

The county from whence we chiefly derive our wild ducks is Lincolnshire, in the fenny parts of which the inhabitants make a decoy, and, if possible, choose a pond surrounded with wood, that the birds may be well sheltered, and remain free from noise, or any disturbance that might tend to frighten them away.

The intelligent Mr. Pennant has collected some curious information respecting the catching of wild fowl. He informs us that as soon as the evening sets in, the decoy rises, as they term it, and the

wild fowl feed during the night. In a still evening the noise of their wings, during their flight, may be heard at a very great distance, and is a pleasing though rather melancholy sound. This rising of the decoy in the evening is in Somersetshire called rodding.

The decoy ducks are fed with hempseed, which is flung over the screens in small quantities, to bring them forwards into the pipes, and to allure the wild fowl to follow, as this seed is so light as to float. The pipes just mentioned, of which there are several, are narrow ditches, cut on purpose, and covered with a continued arch of netting, suspended on hoops. These grow narrower from the entrance, and are at last closed with a funnel net. It is necessary to have a pipe or ditch for almost every wind that blows, as upon this circumstance it depends which pipe the wild fowl will take to; and the decoy-man always keeps to the leeward side of the ducks, to prevent his effluvia reaching their sagacious nostrils. All along each pipe, at certain intervals, are placed screens made of reeds, which are so situated that it is impossible the wild fowl should see the decoy-man before they have passed on towards the end of the pipe, where the purse-net is placed. The mallards are induced to go up one of these pipes by the decoy ducks, who lead the way; and when they have got them fairly in, they dive under water, and leave their wild brethren to be taken in the purse-net.

It often happens, however, that the wild fowl

are stupid and sleepy, and will not follow the decoy ducks. When this is the case, they make use of a dog who is taught his lesson: he passes backwards and forwards between the reed screens, in which are little holes, both for the decoy-man to see, and the little dog to pass through: this attracts the eye of the wild fowl, who, not choosing to be interrupted, advance towards this small and contemptible animal, that they may drive him away. The dog, all this time, by direction of the decoy-man, plays among the screens of reeds, nearer and nearer to the purse-net, till at last the decoy-man appears from behind a screen; and the wild fowl, not daring to pass by him in return, nor being able to escape upwards on account of the net covering, rush on to the end of the pipe, and are taken in the purse-net. The dog will not always attract their attention, unless he is previously dressed up in colours, or has something very singular put about him.

There is an act to prevent the taking of wild fowl before the month of October: from that time till February is the general season for taking them in the decoys. It was once the custom in the fens to have an annual driving of the young ducks before they took wing. This was accomplished by a number of people, who collected together and beat a large tract, by which the birds were forced into a net placed in a proper situation; this practice was prohibited by parliament as detrimental. A hundred and fifty dozens have been taken in this way at once.

The decoys of Lincolnshire, which principally supply the London markets, are let at an annual rent, and the number of wild fowl taken in them is amazing. A few years ago the number caught in one season, and in only ten decoys, in the neighbourhood of Wainfleet, amounted to thirty-one thousand two hundred, in which are included several other species of ducks. This quantity makes them so cheap on the spot, that, we have been assured, several decoy-men would be glad to contract for years to deliver their ducks at Boston for ten-pence the couple.

The diversion of duck-shooting, if it deserves the name, is followed in the depth of winter; when the fowler leaves his warm fire-side, at the close of evening, for the snowy marsh, where he will patiently remain, perhaps for hours, till he hears the fowl fly over his head. During this time he is exposed to all the inclemency of the season; and it must be a strong constitution indeed that is not injured by the frequent repetition of this sport. M. Hebert was witness to a method of fowling in a plain between Laon and Rheims, which was not practised in a much more comfortable way. The fowler had taken his station in the middle of a meadow, wrapped in an old blanket, with no other shelter than a hurdle of hazle branches, which screened him from the wind, while he waited till a flock of wild ducks should pass within his reach: he was sitting on a cage of ozier, divided into three compartments, and filled with tame drakes; his post was in the neigh-

bourhood of a river, on one of the banks of which he had built a hut of reeds like a sentry-box, perforated with loop-holes, which he could open and shut at pleasure, to spy his prey, and take his aim. If he saw a flock of wild-fowl in the air, he let loose two or three of his tame drakes, which, after a short flight, alighted within thirty paces of the sentry-box, where he had scattered some grains of oats. The wild ones, after several turns in the air, stooped downwards and followed the tame drakes; or, if they lingered too long, the person dispatched a second flight of drakes, and even a third, and then ran from his observatory to his hut without being perceived: there he opened the loop-hole which was best calculated for his purpose, observed the favourable moment when he could fire without killing his calls; and, as he levelled almost horizontally, he sometimes swept down five or six at a shot. All these precautions seem necessary, as the ducks in a wild state are exceedingly mistrustful, and never alight till after they have wheeled several times round the spot, apparently to discover if they have any enemy to fear.

In some parts of the world they have a singular method of catching these creatures, which has been often noticed by travellers. Some empty calabashes are floated for a few days in the places frequented by the wild fowl, who at first seem somewhat afraid of them; but after a while they become used to the sight, and will at length entirely disregard the floating calabashes. When the fowler finds them

sufficiently familiar, he walks up to his chin in the water with an empty calabash upon his head, having holes in it which correspond with his mouth and eyes, and serve him both to breathe and see through. As nothing appears above the surface of the water but this shell, with which the ducks are already acquainted, they suffer their treacherous enemy to come into the midst of them, who pulls them by the legs, under the water, one by one, till he has got as many as he can conveniently fasten to his girdle; after which, he very coolly retreats to the shore, without disturbing the rest, who allow him to repeat his visits till very few of them are left.

We are indebted to an Arctic bird of this genus for a most luxurious covering to our beds, which cannot be too highly prized by those whose bodily infirmities render them unable to support the weight of blankets. The eider down forms a considerable article of traffic in Greenland and other northern countries where these birds abound. Designed by nature to spend their lives amidst the snows of the Arctic regions, the eider ducks are provided with a clothing of down which no cold can penetrate: this, previous to the time of incubation, they pluck from their breasts, in order to line their nest with it; and such is its elasticity, that the weight of half an ounce will fill the crown of a large hat. They breed in the most northern situations; and almost as soon as the young are hatched, the mother takes them on her back into the water,

where she dives from under them, and thus teaches the ducklings to shift for themselves. In the depth of winter they visit the southern bays of Greenland by thousands. The natives pursue them in their little boats, and when they dive, trace their course by the air-bubbles which rise to the surface: when the ducks appear, they strike them with darts provided for the purpose. When their nests have been robbed of the down, the birds will pluck more to supply the deficiency: if this should be removed, they will again have recourse to their breasts: thus will a single duck sometimes furnish half a pound of this valuable commodity, though in the end the poor sufferer has hardly a single feather left to defend her from the cold.

PELICAN.

GENERIC CHARACTER.

Bill strong, straight, and hooked, more or less, at the end.
Nostrils placed in a longitudinal furrow; very small; sometimes none.
Face naked.
Gullet capable of being distended to a large size.

SPECIFIC CHARACTER.

Pelicanus Onocrotalus.	P. albus; gula saccata. *Linn. Syst. Nat. Gmel.* 1. p. 596. White; the throat provided with a pouch. β. Onocrotalus rostro denticulato. *Briss. Av.* 6. p. 523. A.
Pelican	*Buff. Birds,* 8. p. 259. pl. 217. *Arct. Zool.* 2. p. 578. no. 505. *Will. Orn.* p. 327. pl. 63. *Lath. Syn.* 3. p. 575. no. 1.

The pelicans are provided with a large pouch under their chin, and in this they are said to carry water to their young when they make their nests in the dry deserts: we are told that the lions and

other beasts of prey come there to quench their thirst, but never disturb the brood, on account of this salutary provision. The Egyptians have named this bird the camel of the river, and the Persians the water-carrier. In their gular pouch they convey to the nest the fish which they catch, where they disgorge it to feed their young. This action, ill observed, in all probability gave rise to the popular fable that the pelican nourished its offspring at the expense of its own blood. They lay on the bare ground, and cover their eggs in this situation. Sonnerat found five under a female, which did not give herself the trouble to rise and let him pass; she only made some pecks with her bill, and screamed when he attempted to drive her from her eggs.

These birds have been famed for their attachment to their young, though we do not find that authors give them credit for a larger share of affection than actuates the breast of other animals. They are not, however, at all deficient in their care, as Labat had the pleasure to prove, by fastening two young ones to a stake, and watching the motions of the mother, who daily brought them food, and remained with them constantly till the close of evening, when she retired to roost in a tree over their heads. They all three grew so familiar that they suffered Labat to touch them, and the young ones took very graciously the little fish which he offered them, and which they put first into their

pouch. He describes them as filthier than geese and ducks, and says that nothing but their dirt would have prevented his bringing them away.

Some pelicans are superior in size to a swan; they have been known to weigh twenty-five pounds; yet, notwithstanding their bulk, they rise in the air to a surprising height. The bill is fifteen inches long, and its singular membranous pouch begins at the point of the lower mandible, and, widening gradually, extends ten inches down the front of the neck; a tuft of narrow delicate feathers lies flat on the back of the head; the plumage is white, except some of the wing feathers, which are black; the legs are flesh-coloured.

These birds really deserve the name they have acquired of indolent gluttons; for after they have filled their bags with fish, and devoured as many of them as they can, they will remain without motion, or once changing their posture, till they have digested all their food, are again awakened from their stupor by the calls of hunger, and once more forced to seek their prey. This they do in two ways; either by raising themselves to a great height above the surface of the water, and darting perpendicularly down upon it, or swimming in flocks, and forming a large circle in the great rivers, which they gradually contract, beating the water with their wings and feet, in order to drive the fish into the centre: when they have accomplished their purpose, they open their great mouths and fill

their pouches with their prey, then incline their bills to empty the bag of the water, after which they swim to shore to devour and digest their booty in quiet. We can readily suppose that these birds must destroy an immense quantity of fish, when we are assured that a single pouch is capable of containing a dozen quarts of water. The French, therefore, have not unaptly named them *grand-goziers*, or great-throats.

FRIGATE.

SPECIFIC CHARACTER.

PELICANUS AQUILUS. P. cauda forficata, corpore nigro, rostro rubro, orbitis nigris. *Linn. Syst. Nat. Gmel.* 1. p. 572.

Tail forked; body black; bill red; orbits of the eyes black.

Alcyon major pulla, cauda longiore bifurca. *Brown Jam.* p. 483.

FRIGATE. . . . . *Buff. Birds,* 8. p. 346. pl. 222. *Alb. Av.* 3. tab. 80. *Lath. Syn.* 3. pl. 587.

THIS bird derives its name from the steadiness and rapidity with which it cleaves the air. It is seen at a great distance from land; Labat says, at three or four hundred leagues; and these immense excursions are performed by a single flight, consequently its strength must be prodigious. The frigate, who is very active, obliges another bird, called the booby, to be his caterer, who, in spite of himself, is forced to give up his prey. Dampier gives a curious account of the hostility between the frigates, or man-of-war birds as he calls them, and the boobies. He remarked that both species placed sentinels over their young, especially when they

went to sea for provision. " Of the man-of-war birds," says Dampier, " many were sick or maimed, and seemed unfit to procure their subsistence. They lived not with the rest of their kind, whether they were expelled from the society, or had separated from choice ; these were dispersed in different places, probably that they might have a better opportunity of pillaging. I once saw more than twenty on one of the islands sally out from time to time into the open country to carry off booty, and they returned again almost immediately. When one surprised a young booby that had no guard, he gave it a violent peck on the back to make it disgorge, which it did instantly ; it cast up one or two fish about the bulk of one's hand, which the old man-of-war bird swallowed still more hastily. The vigorous ones play the same game with the old boobies which they find at sea. I saw one myself which flew right against a booby, and with one stroke of its bill made him deliver up a fish which he had just swallowed. The man-of war bird darted so rapidly as to catch it in the air before it could fall into the water."

The frigate is fitted by nature for war : he is remarkably strong about the legs, and is provided with sharp talons and a strong bill ; he flies with great rapidity, and his sight is very acute. This conformation, so well calculated to make him the terror of other sea-birds, was probably the reason why Linnæus gave him the specific name of aquilus, or eagle. Though the frigate seldom swims, yet his

toes are connected by a single scolloped membrane. His wings, when expanded, are said to measure from eight to fourteen feet, though his body is not larger than a full-sized hen. This amazing length of wing, while it is very useful in supporting the bird, during his long flights, is of great inconvenience to him on shore, as he is hardly able to rise from the ground; and in this situation may readily be surprised and taken.

These birds used formerly to occupy a little isle in the extremity of Guadaloupe, where many of them came to repose at night, and nestle in the season. It was called the *Islet of Frigates*, says a French voyager, and still bears the name though they have changed their retreat; for in the years 1643 and 1644, many persons hunted them so closely, that they were obliged to forsake the islet. They either build their nest on the rocks, in little desert isles, on high cliffs, or in lofty trees in some retired situation near the sea. The female lays one or two white eggs, with a carnation tinge, and dotted with crimson. When the brood are first hatched they are covered with a light gray down; and the bill and feet, which are then white, gradually change colour till they become of that blackness which is characteristic of the full-grown bird. Under the throat of the male, when arrived at his full size, there is seen a large pendulous fleshy membrane of a bright red colour; his eyes, which are large, black, and brilliant, are surrounded by a blueish skin.

Frigates are esteemed by the inhabitants of the South-Sea islands for the sake of their long neck feathers, and their fat; the former they work into bonnets, and the latter is highly valued as a sovereign remedy in rheumatic complaints. The Buccaneers are said to extract this oil, which they call the *oil of frigates*, by boiling these birds in great cauldrons; and Labat directs us how to use the remedy, and at the same time assures us that many people have received a complete cure, or, at least, great relief by the use of it.

GANNET.

SPECIFIC CHARACTER.

PELICANUS BASSANUS. P. cauda cuneiformi, corpore albo, rostro remigibusque primoribus nigris, facie cærulea. *Linn. Syst. Nat. Gmel.* 1. p. 577.

Tail wedge-shaped, body white, great wing feathers black; the face blue.

ANSER BASSANUS. *Sib. Scot.* 2. p. 2. t. 9. f. 2.

SULA BASSANA. *Briss. Av.* 6. p. 503. n. 4. t. 44.

SOLAND GOOSE. *Will. Orn.* p. 328. t. 63. *Alb. Av.* 1. t. 86.

GANNET. . . . . *Buff. Birds,* v. 8. p. 341. *Penn. Brit. Zool.* 2. p. 612. pl. 103. *Arctic Zool.* 2. p. 582. n. 510. *Lath. Syn.* 3. p. 608. no. 25. *Bew. Birds,* 2. p. 393.

IN the Firth of Forth rises a stupendous rock, called the Bass-isle, which is famous for the resort of this bird, and from whence it has taken its specific name. The neck of the Gannet is very long; the body flat, and very full of feathers; the crown of the head, and a small space on the hind part of the neck, are buff-coloured; the rest of the plumage is white, except the quill feathers and some other

parts of the wing, which are black; the legs and toes are black, but the fore part of both is marked with a stripe of fine pea green. The tail consists of twelve sharp pointed feathers, the middle of which is the longest. Under the chin of the bird there is a dilatable pouch like that of the pelican, which is large enough to contain five or six herrings, and in the breeding season this pouch is used to convey those fish in to its young. A large gannet will weigh seven pounds, and measure three feet in length.

This species of water fowl is not confined to the Bass-isle, but frequents, in prodigious numbers, the isle of Ailsa in the Firth of Clyde, and the rocks adjacent to St. Kilda. They are found likewise about the Orkneys, and off the coasts of Kerry in Ireland; and Mr. Pennant received one from Dr. Borlase, which he sent from Cornwall. He informs us that the gannet comes on the coasts of Cornwall in the latter end of summer, or beginning of autumn, hovering over the shoals of pilchards that come down through St. George's channel from the Northern seas. The gannet seldom comes near the shore, but is constant to its prey, a sure sign to the fishermen that the pilchards are on the coasts; and when the pilchards retire, generally about the end of September, the gannets are seen no more.

"The bird now sent," continues this gentleman, "was killed at Chandour, near Mounts Bay, September 30, 1762, after a long struggle with a water spaniel, assisted by the boatmen; for it was strong

and pugnacious. The person who took it observed that it had a transparent membrane under the eye-lid, with which it covered at pleasure the whole eye, without obscuring the sight, or shutting the eye-lid; a gracious provision for the security of the eyes of so weighty a creature, whose method of taking its prey is by darting headlong on it from a height of a hundred and fifty feet or more into the water. About four years ago one of these birds flying over Penzance, a thing that rarely happens, and seeing some pilchards lying on a fir-plank, in a cellar used for curing fish, darted itself down with such violence, that it struck its bill quite through the board, about an inch and a quarter thick, and broke its neck."

Gannets are birds of passage, and make their first appearance in March, remaining among the northern islands till August or September. They feed chiefly on herrings; and the consumption of those fish must be immense, when we consider the amazing flocks of these birds that depend upon them for a subsistence. It is said, that not less than one hundred thousand frequent the rocks of St. Kilda; nearly twenty-three thousand of which are annually consumed by the inhabitants. They build their nest in tremendous situations among the rocks; it is large, and composed of grass, sea plants, shavings, &c. Here they lay one egg, which, if removed by the inhabitants, is succeeded by a second, and that if taken away will be replaced by a third; but here they stop, and never lay

a fourth in one season. The plumage of the young birds differs from that of their parents till after the first year, being of a dusky hue, speckled with numerous triangular white spots. Till they are sufficiently strong to provide for themselves they are fed by the old ones, who bring them herrings in their pouch, from whence the young extract them with their bill. While they are employed in fishing, they fly very high; and when they observe, from their exalted situation, a shoal of herrings or pilchards passing under them, they immediately close their wings to their sides, and fall headlong like a stone into the sea, making the water foam and spring up with their descent.

The Bass-isle, which is completely stocked with these creatures, is private property; therefore the birds are never molested by improper persons, and consequently afford a considerable annual profit to the proprietor. The dried birds are occasionally brought to the London markets, where we have seen the ceiling of a shop quite covered with them. The young birds are said to be a favourite dish in most parts of Scotland, where they are roasted, and served up a little before dinner as a whet.

In the Feroe islands, as well as in the rocks about St. Kilda, the inhabitants hazard their lives to take these birds and their eggs, which serve them for their principal food throughout the year. Both eggs and fowls are kept in small pyramidal stone buildings, covered with turf ashes, to preserve them from moisture. This dangerous employment is

practised in two ways. The fowlers either go from the top of the cliffs, or commence their pursuit from the bottom: both are sufficiently terrific, and are thus described in the introduction to the Arctic Zoology.

Fowling from above.

Necessity compels mankind to wonderful attempts. The cliffs which contain the objects of their search are often two hundred fathoms in height, and are attempted from above and below. In the first case the fowlers provide themselves with a rope eighty or a hundred fathoms in length: the fowler fastens one end about his waist and between his legs, recommends himself to the protection of the Almighty, and is lowered down by six others, who place a piece of timber on the margin of the rock, to preserve the rope from wearing against the sharp edge. They have besides a small line fastened to the body of the adventurer, by which he gives signals that they may lower or raise him, or shift him from place to place. The last operation is attended with great danger, by the loosening of the stones, which often fall on his head, and would infallibly destroy him, was it not protected by a strong thick cap; but even that is found unequal to save him against the weight of the larger fragments of rock. The dexterity of the fowlers is amazing; they will place their feet against the front of the precipice, and dart themselves some fathoms from it, with a cool eye survey

the places where the birds nestle, and again shoot into their haunts. In some places the birds lodge in deep recesses. The fowler will alight there, disengage himself from the rope, fix it to a stone, and at his leisure collect the booty, fasten it to his girdle, and resume his pendulous seat. At times he will again spring from the rock, and in that attitude, with a fowling-net placed at the end of a staff, catch the old birds which are flying to and from their retreats. When he has finished this dreadful employ, he gives a signal to his friends above, who pull him up, and share the hard-earned profit. The feathers are preserved for exportation; the flesh is partly eaten fresh; but the greater proportion dried for winter's provision.

Fowling from below.

The fowling from below has its share of danger. The party goes on the expedition in a boat; and when it has attained the base of the precipice, one of the most daring, having fastened a rope about his waist, and furnished himself with a long pole with an iron hook at one end, either climbs, or is thrust up by his companions, (who place a pole under his breech,) to the next footing-spot he can reach. He by means of the rope brings up one of the boat's crew; the rest are drawn up in the same manner; and each is furnished with his rope and fowling-staff. They then continue their progress upwards in the same manner, till they arrive at the region of birds; and wander about the face

of the cliff in search of them. They then act in pairs; one fastens himself to the end of his associate's rope, and, in places where birds have nestled beneath his footing, he permits himself to be lowered down, depending for his security to the strength of his companion, who is to haul him up again; but it sometimes happens that the person above is overpowered by the weight, and both inevitably perish. They fling the fowl down to the boat, which attends their motions, and receives the booty. They often pass seven or eight days in this tremendous employ, and lodge in the crannies which they find in the face of the precipice.

PENGUIN.

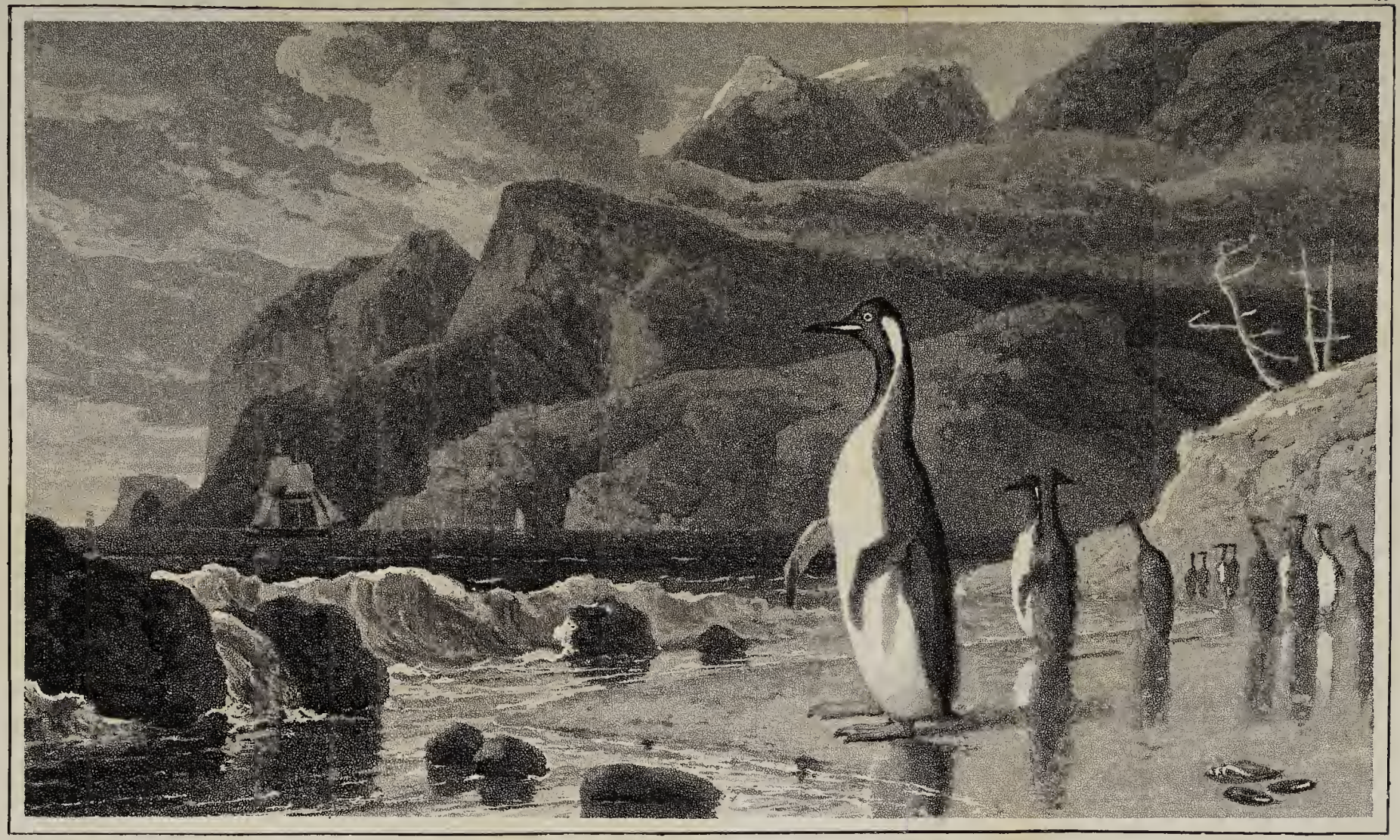
GENERIC CHARACTER.

Bill straight, smooth, compressed.
Wings like fins; no wing feathers.

SPECIFIC CHARACTER.

Aptenodyta Patachonica.	Apt. rostro pedibusque nigris, macula ad aures aurea. *Linn. Syst. Nat. Gmel.* 1. p. 556. Beak and feet black, a gold-coloured spot close to the ears. Manchot de la Nouvelle Guinée. *Sonn. It.* p. 179. t. 113.
Patagonian Penguin.	*Buff. Birds,* v. 9. p. 338. pl. 261. *Phil. Trans.* v. 58. p. 91. t. 5. *Lath. Syn.* v. 3. p. 563. no. 2.

These very singular birds only inhabit the temperate and frigid zones of the southern hemisphere, where they are found in abundance, stalking about perfectly upright with their little fin-like wings hanging close to their sides. Their blueish black backs, contrasted with their white bellies, made Sir John Narborough say that they would be taken



PENGUIN.

Designed by W. Daniell.

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at a distance for young children with white bibs. The usual height of this species is about three feet. They are completely deprived of the power of flying; and as their legs are placed very far back, they can only take short steps, and those with difficulty. Their wings are only appendices in the place where the true wings should be attached, and their only use is to balance the bird in its tottering pace. They come on shore to pass the night and to breed. As they run with great difficulty, and are denied the power of flight, they are constantly exposed to the mercy of those who may chance to land on their retreats; and this defect in their structure, which incapacitates them from avoiding their enemies, has made voyagers regard them as stupid creatures, inattentive even to self-preservation.

Incapable either of resistance or defence, these birds could never exist in inhabited places, as their destruction would be unavoidable: therefore the Author of Nature has wisely placed them in islands far remote from man, and which do not hold out one single temptation to induce him to settle among them. The description Mr. Penrose gives of a species of penguin, that lays its eggs in incredible numbers in the Falkland islands, will afford us some idea of their dreary abodes. He has given the name of *towns* to the places where these birds reside, and tells us the nests were composed of mud, raised into hillocks about a foot high, and placed close to each other.

"Here," says this gentleman, "during the breed-

ing season, we were presented with a sight that conveyed a most dreary and, I may say, awful idea of the desertion of the islands by the human species: a general stillness prevailed in these towns; and whenever we took our walks among them, in order to provide ourselves with eggs, we were regarded, indeed, with side-long glances, but we carried no terror with us.

"The eggs are rather larger than those of a goose, and are laid in pairs. When we took them once, and sometimes twice, in a season, they were as often replaced by the birds; but prudence would not permit us to plunder too far, lest a future supply in the next year's brood might be prevented."

We have already noticed that Mr. Penrose describes the nest as raised into a hillock about a foot high; from which we must infer some peculiarity in the manners of that particular species, as the Patagonian penguin is said to nestle in the ground, and choose for that purpose a down, or sandy plain. "The ground," says Forster, "is every where so much bored, that in walking a person often sinks up to the knees; and if the penguin chance to be in her hole, she revenges herself on the passenger, by fastening on his legs, which she bites very close."

Notwithstanding these birds are so heavy and awkward upon land, they are sufficiently alert in the water, where they dive and continue under a long time, and when they rise again they dart up to the surface with prodigious swiftness. The shore is sometimes so completely covered with

them, that three hundred have been taken in the course of an hour; for they are so stupid that they make no effort to escape, but stand by while others are knocked down, till it comes to their turn. Bougainville attempted to bring one of them alive to Europe; it grew sufficiently tame to distinguish and follow the person who had the charge of feeding it, and it ate indifferently bread, flesh, or fish. But this diet was not sufficient; it absorbed its fat, became excessively emaciated, and died.

The illustrious Captain Cook, who penetrated further amidst the southern ice, and with more intrepidity, than any navigator before him, observes, that the penguins increased in numbers as he advanced into higher latitudes and colder climates; they even swarm about the antarctic circle, where the islands are desolate, deserted, without verdure, and buried beneath eternal snow. "The cold was intense," says Cook; "the two islands were covered with hoar frost and snow, and no trees or shrubs appeared; we saw no living creature, except the shags and the penguins; the last were so numerous that they seemed to incrust the rock."

They are said to sleep extremely sound, and to be very tenacious of life: the former was ascertained by Dr. Sparrman, who tells us that he stumbled over one of them and kicked it several yards without disturbing its rest; and Mr. Forster says that he left a number of them apparently lifeless, while he went in pursuit of others; but they all afterwards got up and marched off with the utmost

gravity. From these accounts we may conclude, that they are not possessed of too much nervous irritability.

The flesh of the penguin is rank and fishy: nevertheless our sailors say that it is pretty good eating: this however is no criterion, as to sailors in a long voyage every thing that has life seems good to be eaten; and it has been very properly remarked, that we often find them recommending those animals as dainties, which they themselves would spurn at after a course of good living. Nothing is more common in their journals than such accounts as these: This day we shot a fox, pretty good eating; this day we shot a heron, pretty good eating; and this day we killed a turtle, which they rank with the heron and the fox, as pretty good eating.

END OF THE FIRST VOLUME.

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